

CALIFORNIA DEPARTMENT OF TRANSPORTATION



**2015 CALIFORNIA HIGH-OCCUPANCY VEHICLE LANE
DEGRADATION DETERMINATION REPORT**

Prepared by

**Division of Traffic Operations
Office of Traffic Management**

Submitted to

**Federal Highway Administration
California Division**

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EXECUTIVE SUMMARY

The California Department of Transportation (Caltrans) prepared the “2015 California High-Occupancy Vehicle Lane Degradation Determination Report” to report the performance of the high-occupancy vehicle (HOV) network in California as required by federal regulations. The separate “2015 California High-Occupancy Vehicle Lane Degradation Action Plan” discusses the causes of degradation and identifies remediation strategies to bring degraded HOV facilities into compliance with federal regulations.

Federal law authorizes states to allow inherently low-emission vehicles (ILEVs), certain gasoline/electric plug-in hybrid vehicles, and toll-paying vehicles to access HOV lanes without meeting occupancy requirements.¹ States that allow these exempted vehicles to use HOV lanes are required to monitor and report on the performance of those lanes. By federal definition, an HOV lane is considered degraded if the average traffic speed during the morning or evening weekday peak commute hour is less than 45 miles per hour (mph) for more than 10 percent of the time over a consecutive 180-day period. In other words, the HOV lane’s average traffic speed cannot drop below 45 mph for more than two weekdays each month. If the lane is considered degraded, then the state must limit or discontinue the use of the lane by the exempted vehicles or take other actions that will bring the operational performance up to the federal standard within 180 days after identification of the lane being degraded.

California regulates access by ILEV and plug-in hybrids to HOV lanes through issuance of vehicle decals. In 2015, an unlimited number of decals were available for ILEVs, and up to 85,000 decals were available for plug-in hybrid vehicles.² As of December 31, 2015, the limit on the number of available decals issued for plug-in hybrid vehicles had reached 85,000 decals, while over 94,760 were issued for ILEVs. Statewide distribution of hybrid and ILEV decal registrations by county are available in the Appendix, Table A-1. Drivers of vehicles that do not meet occupancy requirements can pay a toll to access certain HOV lanes - also known as high-occupancy/toll lanes (HOT) or express lanes.³

In 2015, Caltrans monitored degradation on 1,308 lane-miles of HOV lanes. This represents about 77 percent of the total 1,700 lane-miles of HOV lanes in California. Data is not available for the remaining 23 percent of the statewide HOV network due to vehicle detector upgrades and repairs, or for express toll lanes that do not require degradation monitoring. Table 1 summarizes degradation on the monitored segments in the 2015 calendar year. From 2014 to 2015, the number of degraded lane-miles increased approximately four percent from 844 to 874. This trend suggests a connection with the 12 percent increase in vehicle-hours of delay

¹ Refer to title 23 United States Code section 166

² Refer to Vehicle Code sections 5205.5 and 21655.9

³ Refer to Streets and Highways Code sections 149.1 and 149.4 through 149.10

measured at 45 miles per hour on the entire State Highway System (SHS) during the same period.

Table 1		
2015 STATEWIDE HOV LANE DEGRADATION SUMMARY		
	First 180-Day Period January to June 2015	Second 180-Day Period July to December 2015
Degraded	817 lane-miles (62%)	874 lane-miles (67%)
Not Degraded	491 lane-miles (38%)	434 lane-miles (33%)
Total	1,308 lane-miles (100%)	1,308 lane-miles (100%)

In 2015, HOV lanes carried over 318 million vehicle miles traveled (VMT) during the 8:00 a.m. to 9:00 a.m. peak commute hour, and 387 million VMT during the 5:00 p.m. to 6:00 p.m. peak commute hour. These high levels of traffic demand and the current threshold for degradation present challenges for California to achieve the federal performance standard. Since past traffic trends typically show more degradation in the second half of the year than the first half, remediation actions were considered only for degraded facilities identified in the second half of the year. Analysis suggests that factors contributing to degradation include:

- Recurrent congestion on the SHS.
- Motorists from the general-purpose lanes merging into the lane near the end of an HOV facility which backs up traffic into the HOV lane.
- Weaving conflicts from motorists who attempt to enter or exit the HOV lanes. A research study is being conducted to determine methodology for optimizing the most effective locations for ingress and egress locations on limited access control HOV lanes.
- Traffic disruptions on the highway due to severe weather or traffic incidents, both in and adjacent to HOV lanes. Caltrans plans to initiate a research study to develop a methodology for systematically identifying such occurrences and exclude the freeway segments from degradation analysis. The effort would involve research to coordinate, gather, and analyze data from Caltrans and other agencies such as the California Highway Patrol.

At this time, Caltrans is not considering prohibiting exempted vehicles such as ILEVs from HOV lanes. Traffic counts were conducted in the fall of 2016 and planned in the spring of 2017 to determine the distribution of vehicle occupancy and classifications, including exempted vehicles.

1. DETERMINATION METHODOLOGY

By definition, an HOV lane is considered degraded if the average speed of traffic during morning or evening weekday peak commute hour periods is less than 45 miles per hour (mph) for more than 10 percent of the time over a consecutive 180-day period.

Caltrans uses the Freeway Performance Measurement System (PeMS) software tool to monitor and analyze the operational performance of state highways. PeMS serves as a central repository to collect, store, and analyze traffic data from sources such as vehicle detectors and traffic census stations. The system reports operational information such as traffic speeds and volumes. Two data collection periods were used: January 1 to June 30, 2015, and July 1 to December 31, 2015. Weekday data was analyzed, including holidays that fall on weekdays. Weekend data was not analyzed since the federal standard only applies to weekdays. The data was analyzed as follows:

- Each HOV corridor was broken into segments of maximum five miles in length for analysis.
- The peak hour data for each segment was collected from 8:00 a.m. to 9:00 a.m. and from 5:00 p.m. to 6:00 p.m. These peak-hour periods were selected based on an analysis of the typical statewide peak traffic delay.
- Average speed for each segment was calculated by dividing the total vehicle-miles traveled by the total vehicle-hours traveled.
- A weekday was considered as degraded if either the morning or evening peak hour average speed was below 45 mph.
- A segment was identified as degraded only when the percentage of degraded weekdays out of the total monitored weekdays exceeded 10 percent.



In 2015, Caltrans monitored degradation on approximately 77 percent of the total 1,700 HOV lane-miles across California. The remaining 23 percent of the statewide HOV network have no data due to detector repairs and upgrades, or are express toll lanes which do not require degradation monitoring. There were 1,308 lane-miles monitored in 2015. The number of lane-miles monitored is as follows:

Total statewide HOV network	1,700 lane-miles
- Segments with no data available or not monitored	- 392 lane-miles
Total lane-miles monitored	1,308 lane-miles

Many variables can affect daily traffic flow in HOV lanes. While the federal standard distinguishes HOV lane's performance as degraded or not degraded, Caltrans further assesses HOV lane performance by categorizing degradation into three categories: slightly degraded, very degraded, and extremely degraded. This categorization helps distinguish daily recurrent congestion from nonrecurring congestion and helps identify remediation strategies based on severity. The criteria for each category are as follows:

- Slightly Degraded—degradation occurs from ten to 49 percent of the time, or three to nine weekdays per month.
- Very Degraded—degradation occurs from 50 to 74 percent of the time, or ten to 15 weekdays per month.
- Extremely Degraded—degradation occurs 75 percent or more of the time, or 16 or more weekdays per month.

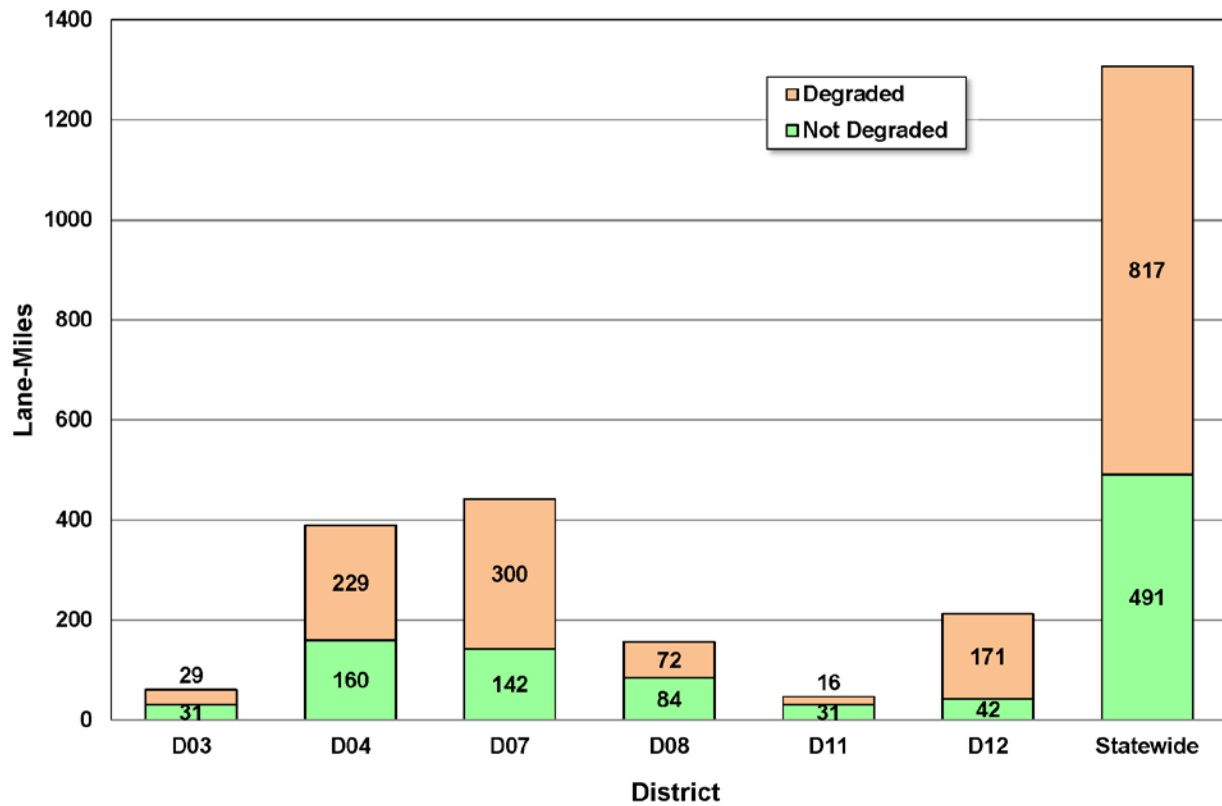
2. ANALYSIS RESULTS

During the first half of 2015, from January through June, approximately 62 percent (817 of 1,308 lane-miles) of monitored HOV lane segments were degraded and 38 percent (491 lane-miles) were not degraded. Figure 1 shows the amount of HOV degradation by district and statewide. Figure 2 shows the distribution of statewide degraded lane-miles by district. Figure 3 shows statewide degradation further categorized as slightly degraded, very degraded, and extremely degraded. Less than half of the degraded segments (42 percent) were categorized as slightly degraded (339 of 817 total degraded lane-miles).

For the second half of 2015, from July through December, approximately 67 percent (874 of 1,308 lane-miles) of all monitored HOV lane segments were degraded, and 33 percent (434 lane-miles) were not degraded. Figure 4 shows the amount of HOV degradation by district and statewide. Total degradation increased between the first and second half of the year. Figure 5 shows the distribution of statewide degraded lane-miles by district. Figure 6 shows statewide degradation further categorized as slightly degraded, very degraded, and extremely degraded. Similar to the first half of the year, slightly degraded facilities accounted for one-third of all degradation, at 34 percent (300 of 874 total degraded lane-miles).

Figure 1

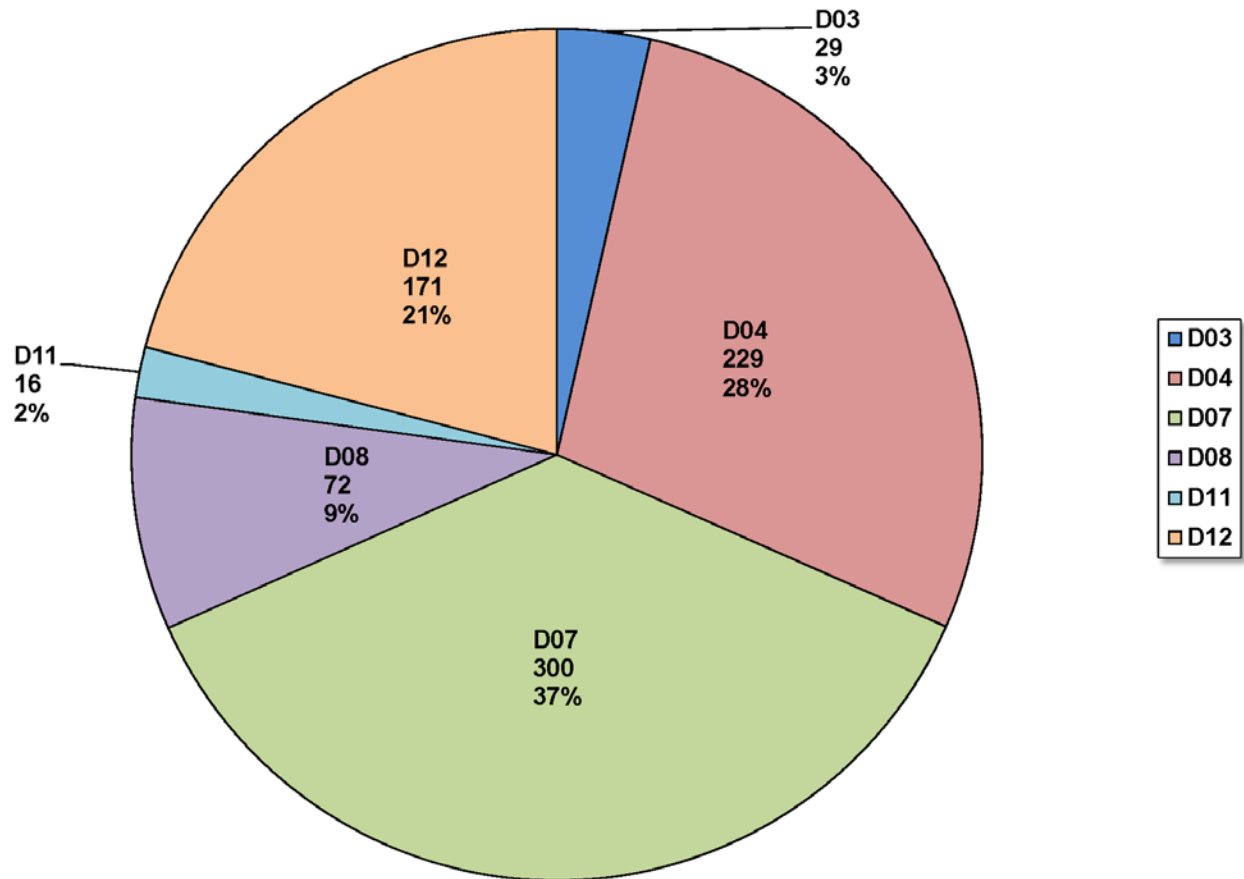
**STATEWIDE DEGRADATION SUMMARY BY DISTRICT
JANUARY 1 TO JUNE 30, 2015**



Note: 1,308 total lane-miles total (numbers may not add up due to rounding).

Figure 2

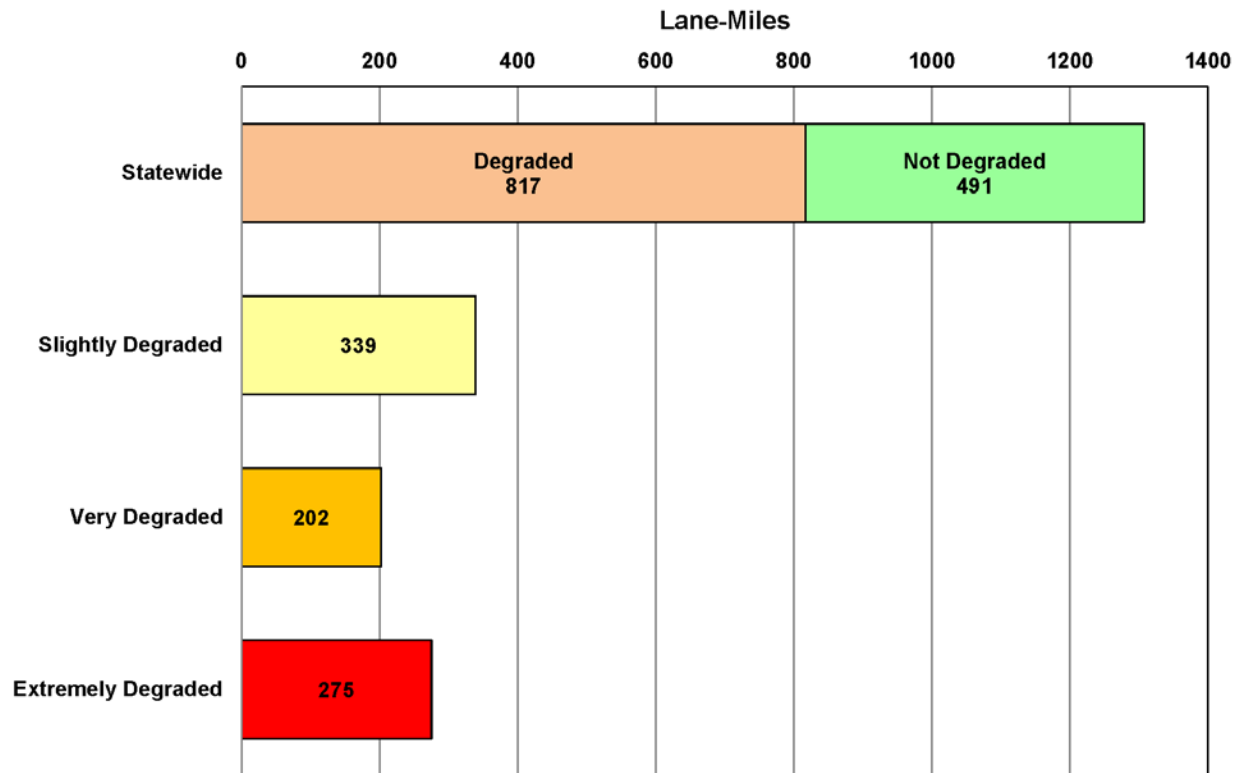
**DISTRIBUTION OF STATEWIDE DEGRADED LANE-MILES BY DISTRICT
JANUARY 1 TO JUNE 30, 2015**



Note: 817 degraded lane-miles total (numbers may not add up due to rounding).

Figure 3

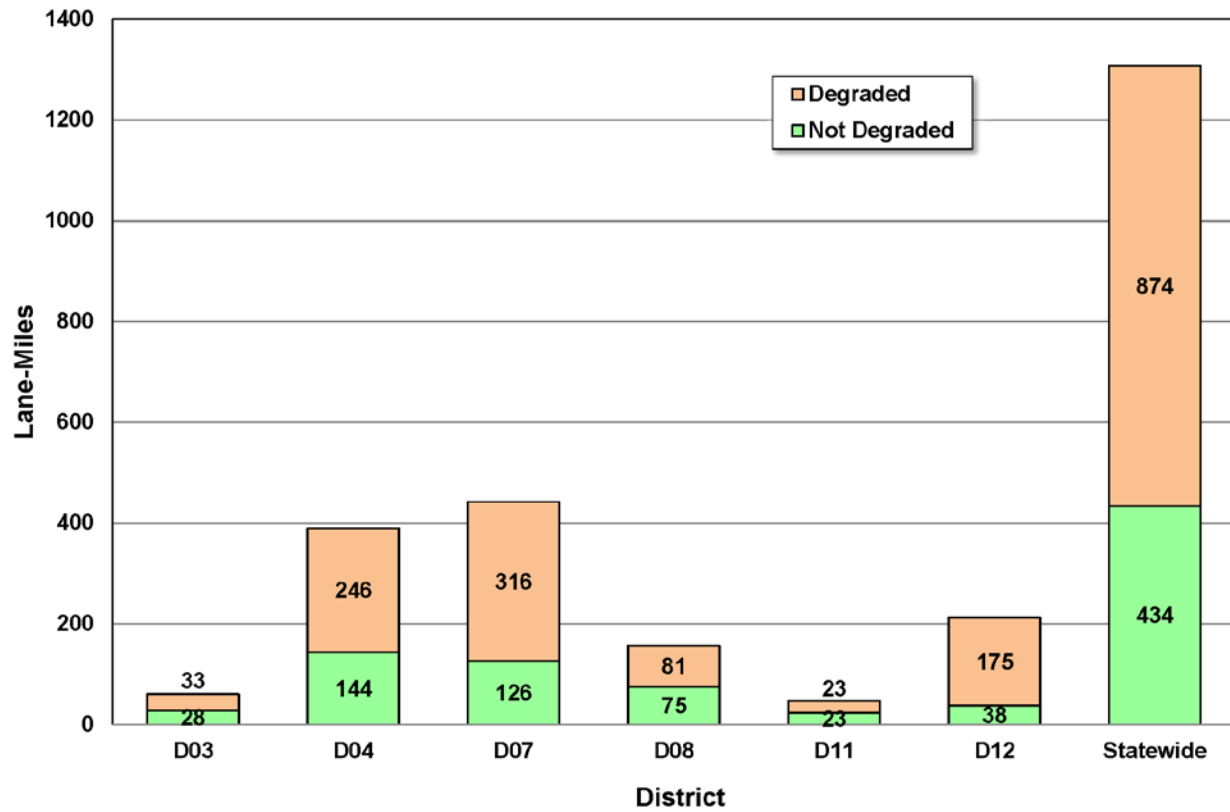
**STATEWIDE DEGRADATION SUMMARY BY CATEGORY
JANUARY 1 TO JUNE 30, 2015**



Note: 1,308 total lane-miles (numbers may not add up due to rounding).

Figure 4

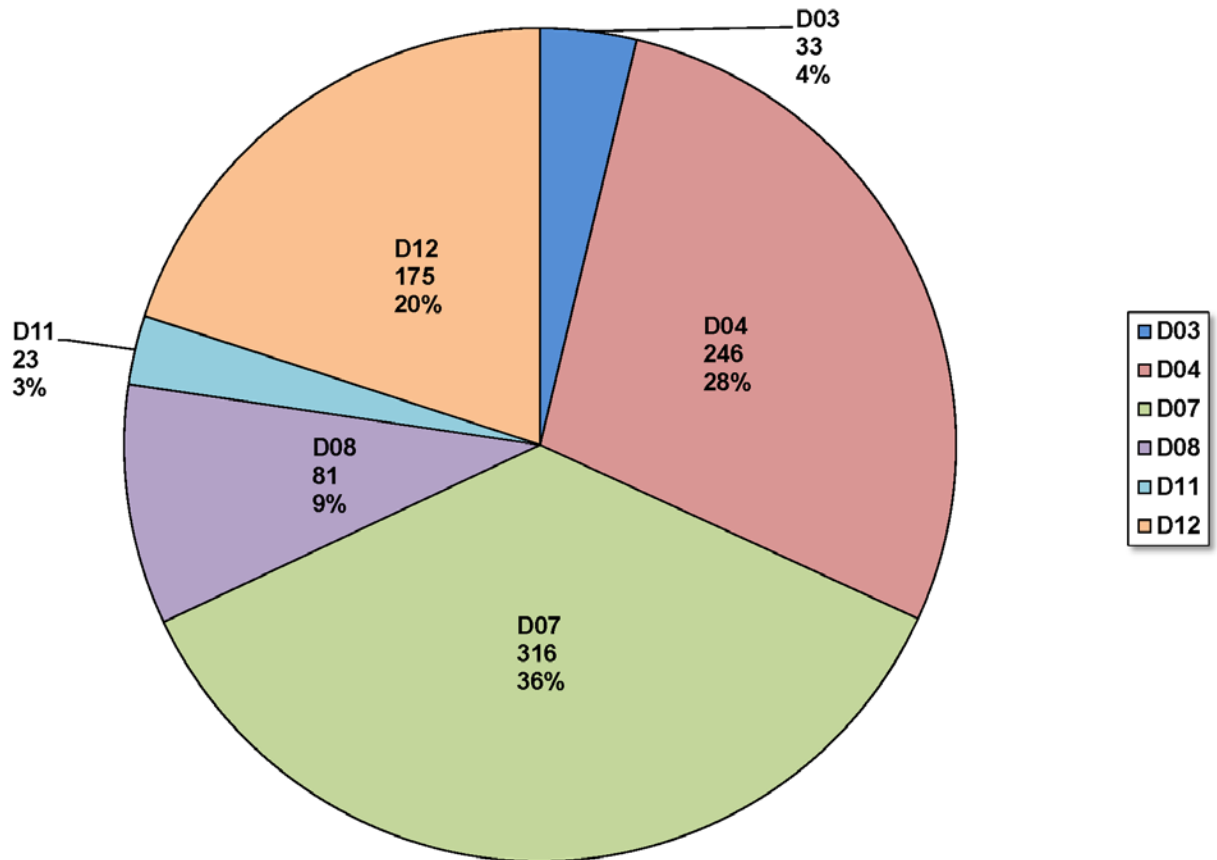
**STATEWIDE DEGRADATION SUMMARY BY DISTRICT
JULY 1 TO DECEMBER 31, 2015**



Note: 1,308 total lane-miles.

Figure 5

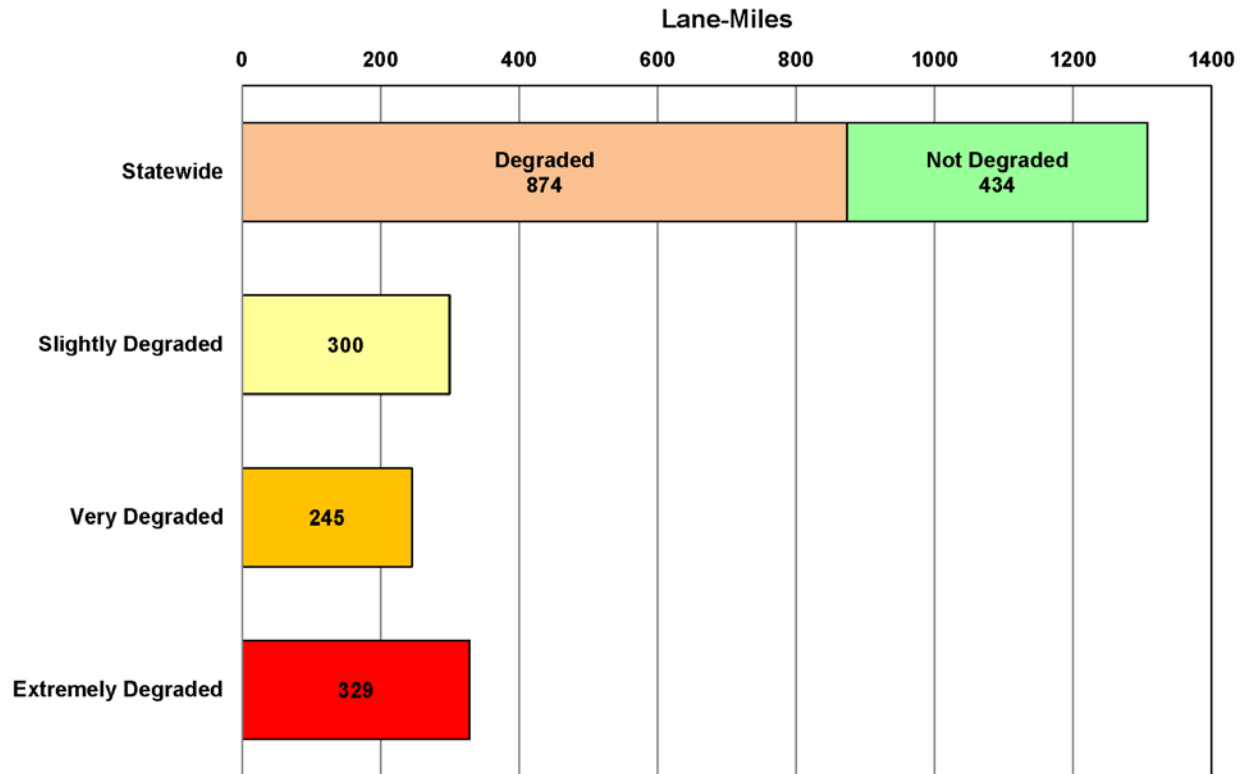
**DISTRIBUTION OF STATEWIDE DEGRADED LANE-MILES BY DISTRICT
JULY 1 TO DECEMBER 31, 2015**



Note: 874 total degraded lane-miles.

Figure 6

**STATEWIDE DEGRADATION SUMMARY BY CATEGORY
JULY 1 TO DECEMBER 31, 2015**



Note: 1,308 total lane-miles.

2.1. DISTRICT 3 ANALYSIS

District 3 includes 11 counties in the Sacramento Valley and Northern Sierra: Glenn, Butte, Colusa, Sierra, Sutter, Yuba, Placer, El Dorado, Sacramento, Yolo, and Nevada. Most of these counties are rural and agricultural except for the major urban areas around the Sacramento region. District 3 has a population of 2.79 million people.⁴ The District is responsible for 1,516 centerline miles of highway and operates HOV lanes on Routes 50, 80, and 99.

Degradation increased from 29 lane-miles to 33 lane-miles between the first and second halves of 2015, respectively. Figure 7 and Figure 8 provide maps of the degraded segments in District 3. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Table 2 and Table 3 list the corridors with degraded HOV lanes in District 3.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 7

**DISTRICT 3 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

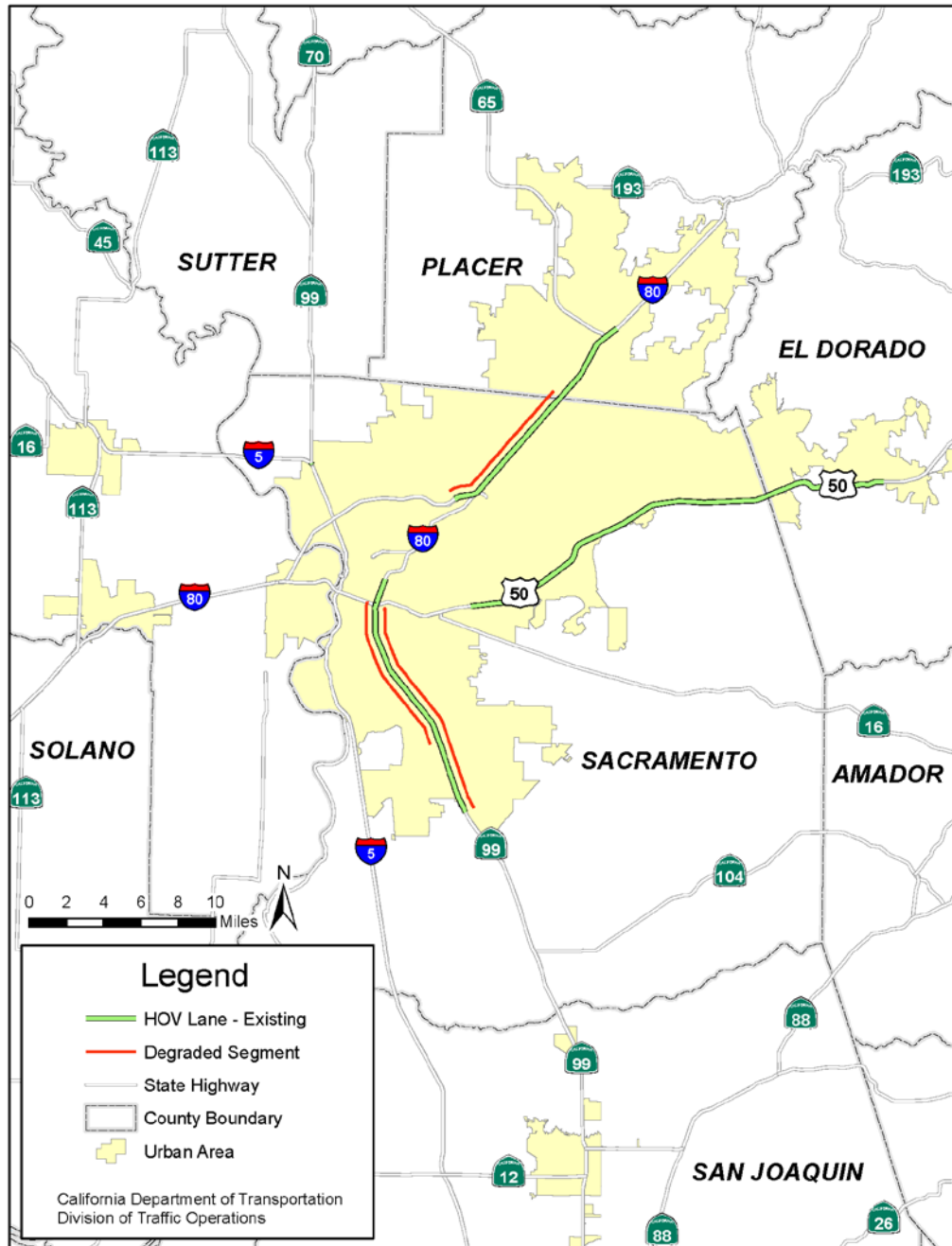


Figure 8

**DISTRICT 3 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

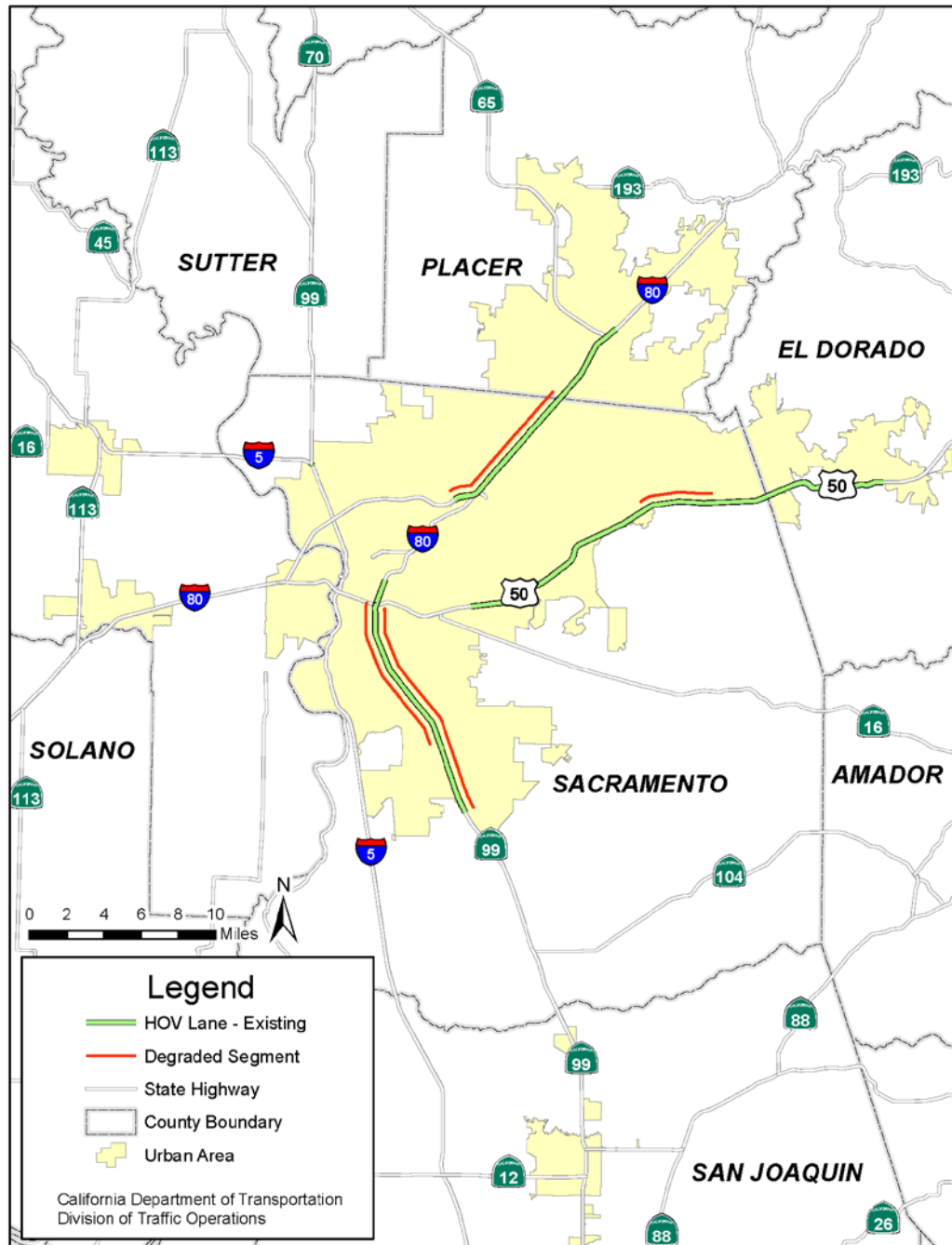


Table 2

**DISTRICT 3 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
3	50	EB	SAC	12.500	SAC	16.311	2
3	80	WB	SAC	20.124	SAC	16.313	2
3	99	NB	SAC	11.900	SAC	R24.300	2
3	99	SB	SAC	R24.300	SAC	16.034	2

Table 3

**DISTRICT 3 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
3	50	EB	SAC	12.500	SAC	16.311	2
3	50	WB	SAC	20.124	SAC	16.311	2
3	80	WB	PLA	0.000	SAC	M9.400	2
3	99	NB	SAC	11.900	SAC	R24.300	2
3	99	SB	SAC	R24.300	SAC	16.034	2

2.2. DISTRICT 4 ANALYSIS

District 4 includes 101 incorporated cities and nine counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. The District is comprised of a mix of populated urbanized areas surrounding the San Francisco Bay and low population density in suburban and agricultural areas located in the outskirts of the region. District 4 has a population of 7.57 million people.⁴ The District is responsible for 1,460 centerline miles of highway and operates HOV lanes on Routes 4, 80, 84, 85, 87, 92, 101, 160, 237, 280, 580, 680, and 880.

Degradation increased from 229 lane-miles to 246 lane-miles between the first and second halves of 2015, respectively. Figure 9 and Figure 10 provide maps of the degraded segments in District 4. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Table 4 and Table 5 list the corridors with degraded HOV lanes in District 4.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 9

**DISTRICT 4 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**



Figure 10

**DISTRICT 4 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**



Table 4

**DISTRICT 4 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
4	4	WB	CC	R20.088	CC	R15.800	2
4	80	EB	ALA	2.500	CC	9.900	3
4	80	WB	CC	7.446	ALA	1.900	3
4	85	NB	SCL	4.795	SCL	R19.005	2
4	85	SB	SCL	R23.800	SCL	4.795	2
4	87	NB	SCL	0.200	SCL	7.297	2
4	87	SB	SCL	7.297	SCL	3.748	2
4	101	NB	MRN	3.800	MRN	8.323	2
4	101	SB	MRN	18.900	MRN	12.846	2
4	101	NB	SCL	30.810	SCL	44.978	2
4	101	NB	SM	1.876	SM	6.600	2
4	101	SB	SM	6.600	SCL	49.702	2
4	101	SB	SCL	44.978	SCL	R35.534	2
4	101	SB	SCL	R21.724	SCL	R17.000	2
4	237	EB	SCL	3.000	SCL	9.500	2
4	237	WB	SCL	R6.265	SCL	3.000	2
4	280	NB	SCL	L4.700	SCL	14.000	2
4	280	SB	SCL	14.000	SCL	L4.700	2
4	580	EB	ALA	10.485	ALA	R7.800	2
4	680	NB	CC	R3.898	CC	20.300	2
4	680	SB	CC	R18.579	CC	R4.503	2
4	880	NB	SCL	8.700	ALA	R35.400R	2
4	880	SB	ALA	22.700	SCL	8.700	2

Table 5
**DISTRICT 4 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
4	4	WB	CC	R24.400	CC	R15.800	2
4	80	EB	ALA	2.500	CC	9.900	3
4	80	WB	CC	7.446	ALA	1.900	3
4	85	NB	SCL	4.795	SCL	R23.800	2
4	85	SB	SCL	R23.800	SCL	4.795	2
4	87	NB	SCL	0.200	SCL	7.297	2
4	87	SB	SCL	7.297	SCL	3.748	2
4	101	NB	MRN	3.800	MRN	8.323	2
4	101	NB	SON	15.200	SON	18.400	2
4	101	SB	MRN	18.900	MRN	12.846	2
4	101	NB	SCL	R17.000	SCL	R21.724	2
4	101	NB	SCL	30.810	SCL	49.702	2
4	101	SB	SM	6.600	SCL	R35.534	2
4	101	SB	SCL	R21.724	SCL	R17.000	2
4	237	EB	SCL	3.000	SCL	9.500	2
4	237	WB	SCL	9.500	SCL	3.000	2
4	280	NB	SCL	L4.700	SCL	14.000	2
4	280	SB	SCL	14.000	SCL	L4.700	2
4	580	EB	ALA	10.485	ALA	R7.800	2
4	680	NB	CC	R3.898	CC	20.300	2
4	680	SB	CC	R18.579	CC	16.300	2
4	880	NB	SCL	8.700	ALA	19.300	2
4	880	SB	ALA	22.700	ALA	8.700	2

2.3. DISTRICT 7 ANALYSIS

District 7 includes two heavily populated urban counties, Los Angeles County and Ventura County. Los Angeles County, with 10.2 million people, is the most populated county in California. In total, District 7 has a population of over 11 million people.⁴ The District is responsible for 1,113 centerline miles of highway and operates HOV lanes on Routes 5, 10, 14, 57, 60, 91, 105, 110, 118, 134, 170, 210, 405, and 605. On average, highways in District 7 support 100 million vehicle miles traveled every day.

Degradation increased from 300 lane-miles to 316 lane-miles between the first and second halves of 2015, respectively. Figure 11 and Figure 12 provide maps of the degraded segments in District 7. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Table 6 and Table 7 list the corridors with degraded HOV lanes in District 7.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 11

**DISTRICT 7 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**



Figure 12

**DISTRICT 7 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**



Table 6

**DISTRICT 7 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
7	5	NB	LA	39.400	LA	R45.600	2
7	5	SB	LA	42.389	LA	39.400	2
7	10	EB	LA	17.000	LA	48.260	2 (3 during peak periods)
7	10	WB	LA	31.200	LA	17.000	2 (3 during peak periods)
7	14	NB	LA	R24.800	LA	33.812	2
7	14	NB	LA	42.775	LA	R47.256	2
7	14	SB	LA	R29.281	LA	R24.788	2
7	57	NB	LA	R0.000	LA	R4.518R	2
7	57	SB	LA	R4.518L	LA	R0.000	2
7	60	EB	LA	R23.000	LA	R30.450	2
7	60	WB	LA	R30.450	LA	R23.000	2
7	91	EB	LA	R6.400	LA	R20.700	2
7	91	WB	LA	R20.700	LA	R11.167	2
7	105	EB	LA	R2.200	LA	R18.090	2
7	105	WB	LA	R14.117	LA	R6.172	2
7	110	NB	LA	9.800	LA	20.500	2
7	110	SB	LA	16.933	LA	13.367	2
7	118	EB	LA	R7.600	LA	R11.400R	2
7	134	EB	LA	0.000	LA	R8.855	2
7	134	WB	LA	4.428	LA	0.000	2
7	170	NB	LA	R17.505	LA	R20.510	2
7	170	SB	LA	R17.505	LA	R14.500	2
7	210	EB	LA	R25.000	LA	R52.100	2
7	210	WB	LA	R42.964	LA	R25.000	2
7	405	NB	LA	0.000	LA	48.600	2
7	405	SB	LA	43.758	LA	0.000	2
7	605	NB	LA	R4.140	LA	20.700	2
7	605	SB	LA	R16.560	LA	R8.280	2

Table 7

**DISTRICT 7 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
7	5	NB	LA	39.400	LA	R45.600	2
7	10	EB	LA	17.000	LA	31.200	2 (3 during peak periods)
7	10	EB	LA	42.400	LA	48.260	2 (3 during peak periods)
7	10	WB	LA	31.200	LA	17.000	2 (3 during peak periods)
7	14	NB	LA	R24.800	LA	33.812	2
7	14	NB	LA	42.775	LA	R47.256	2
7	14	SB	LA	R29.281	LA	R24.788	2
7	57	NB	LA	R0.000	LA	R4.518R	2
7	57	SB	LA	R4.518	LA	R0.000	2
7	60	EB	LA	R23.000	LA	R30.450	2
7	60	WB	LA	R30.450	LA	R23.000	2
7	91	EB	LA	R6.400	LA	R20.700	2
7	91	WB	LA	R20.700	LA	R11.167	2
7	105	EB	LA	R2.200	LA	R18.090	2
7	105	WB	LA	R14.117	LA	R6.172	2
7	110	NB	LA	9.800	LA	20.500	2
7	110	SB	LA	20.500	LA	13.367	2
7	118	EB	LA	R3.800	LA	R11.400R	2
7	118	WB	LA	R11.400L	LA	R7.600	2
7	134	EB	LA	0.000	LA	R8.855	2
7	134	WB	LA	R13.300	LA	0.000	2
7	170	NB	LA	R17.505	LA	R20.510	2
7	170	SB	LA	R20.510	LA	R14.500	2
7	210	EB	LA	R25.000	LA	R52.100	2
7	210	WB	LA	R47.532	LA	R25.000	2
7	405	NB	LA	0.000	LA	26.400	2
7	405	NB	LA	38.915	LA	48.600	2
7	405	SB	LA	43.758	LA	0.000	2
7	605	NB	LA	R0.000	LA	R16.560	2
7	605	SB	LA	R16.560	LA	R8.280	2

2.4. DISTRICT 8 ANALYSIS

District 8, located east of the Los Angeles metropolitan area, includes Riverside and San Bernardino Counties, and 49 incorporated cities. District 8 has the largest land area of all the districts, but rural desert and mountain expanses comprise the majority of land. The District has a population of 4.44 million people.⁴ Out of the 1,919 centerline miles of highway, the district is responsible for HOV lanes on Routes 10, 60, 71, 91, 210, and 215.

Degradation increased from 72 lane-miles to 81 lane-miles between the first and second halves of 2015, respectively. Figures 13 and 14 provide maps of the degraded segments in District 8. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Tables 8 and 9 list the corridors with degraded HOV lanes in District 8.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 13

**DISTRICT 8 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

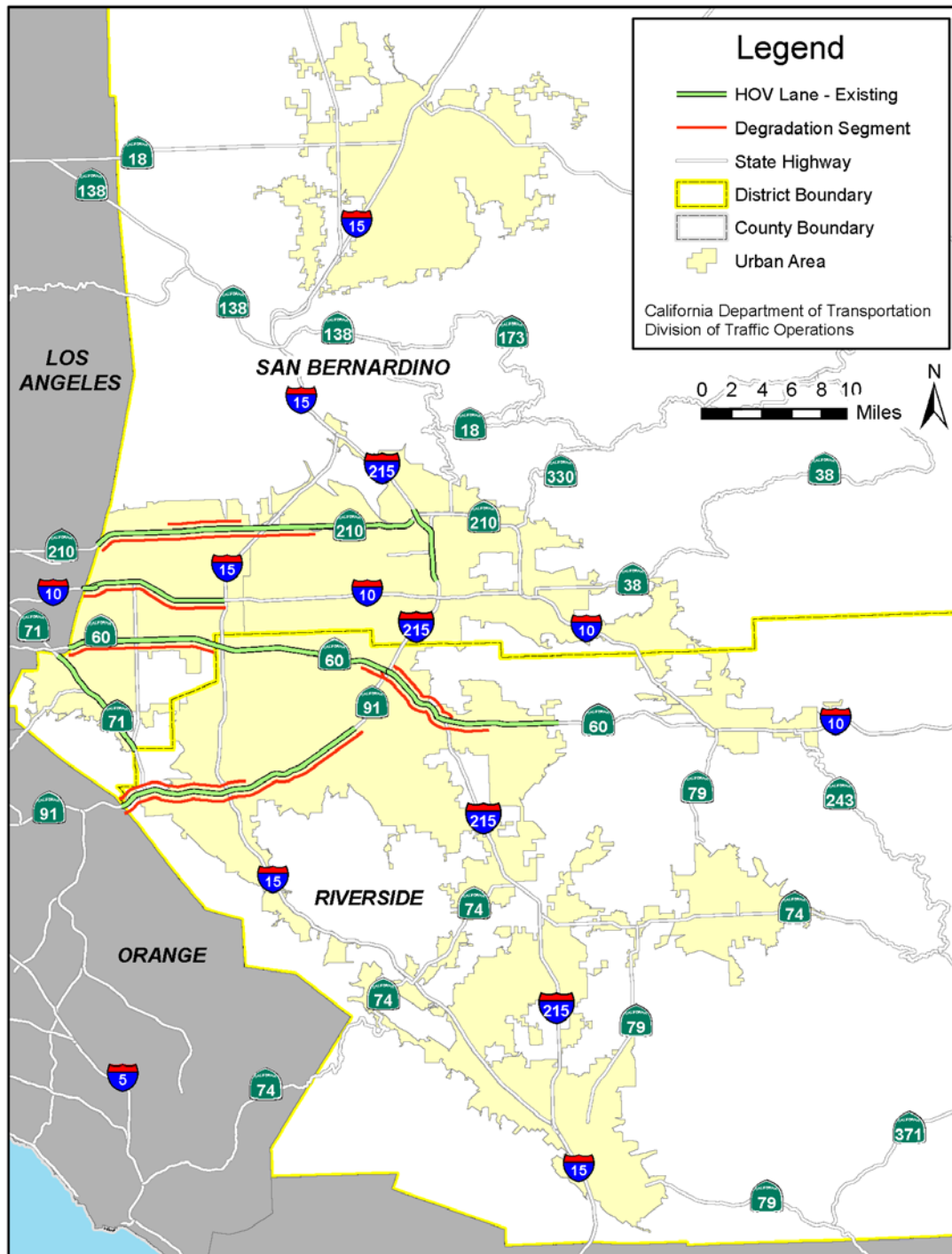


Figure 14

**DISTRICT 8 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

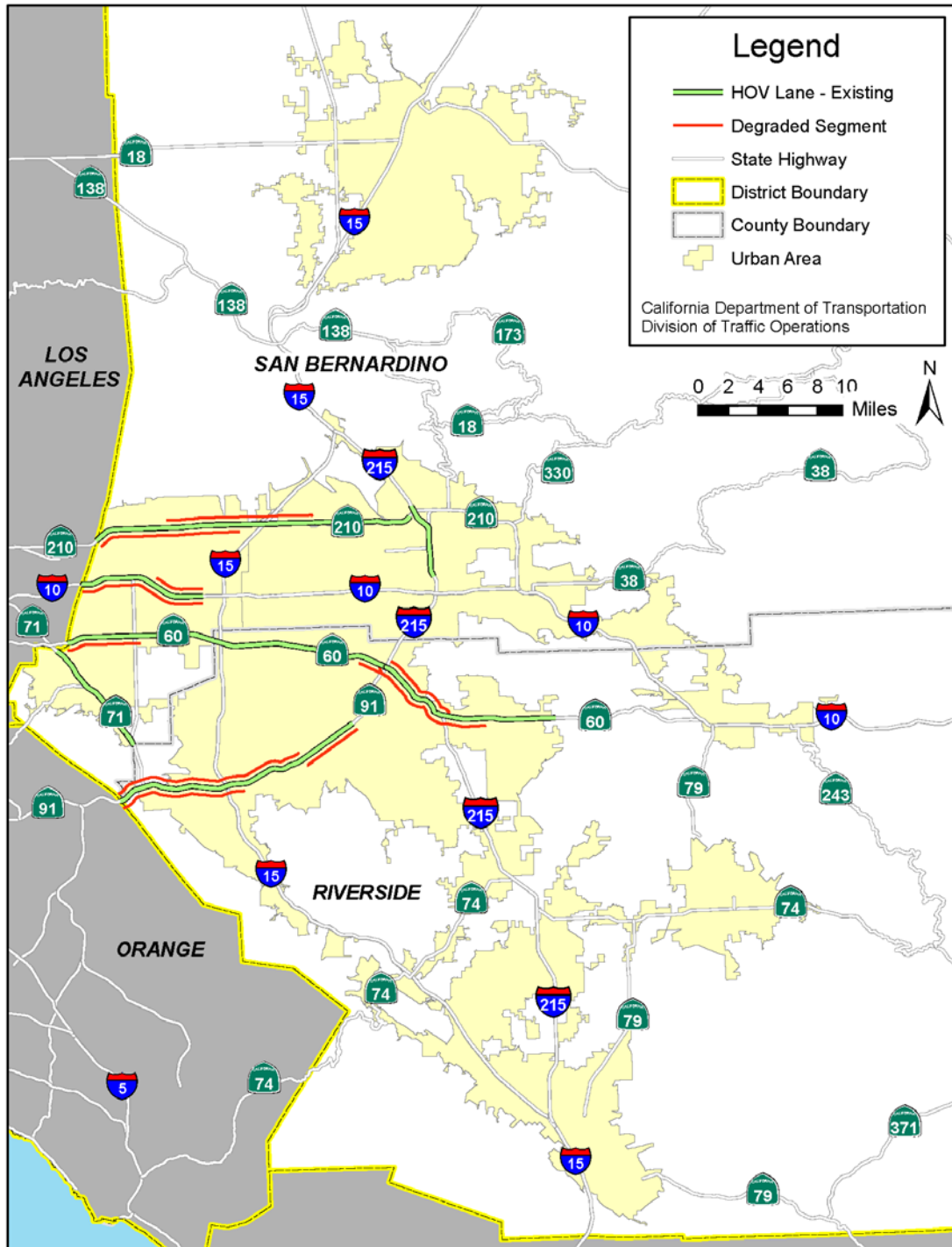


Table 8

**DISTRICT 8 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
8	10	EB	SBD	0.000	SBD	9.900	2
8	60	EB	SBD	R0.000	RIV	R0.017	2
8	60	EB	RIV	10.266	RIV	15.413	2
8	60	WB	RIV	R0.017	SBD	R4.987	2
8	91	EB	RIV	R0.000	RIV	17.400	2
8	91	WB	RIV	8.644	RIV	R0.000	2
8	210	EB	SBD	0.000	SBD	14.800	2
8	210	WB	SBD	9.867	SBD	4.933	2
8	215	NB	RIV	R38.300	RIV	43.300R	2
8	215	SB	RIV	43.300L	RIV	R38.300	2

Table 9

**DISTRICT 8 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
8	10	EB	SBD	0.000	SBD	9.900	2
8	10	WB	SBD	9.900	SBD	4.950	2
8	60	EB	SBD	R0.000	SBD	R0.017	2
8	60	EB	RIV	10.266	RIV	15.413	2
8	60	WB	RIV	R0.017	SBD	R0.000	2
8	91	EB	RIV	R0.000	RIV	17.400	2
8	91	WB	RIV	13.022	RIV	R0.000	2
8	210	EB	SBD	0.000	SBD	9.867	2
8	210	WB	SBD	9.867	SBD	4.933	2
8	215	NB	RIV	R38.300	RIV	43.300R	2
8	215	SB	RIV	43.300L	RIV	R38.300	2

2.5. DISTRICT 11 ANALYSIS

District 11, the southernmost district in California, borders Mexico. It includes San Diego and Imperial Counties, and has a population of 3.44 million people.⁴ The District manages 1,029 centerline miles of highway, and is responsible for HOV lanes on Routes 5, 15, 163, 805, and 905.

Degradation increased from 16 lane-miles to 23 lane-miles between the first and second halves of 2015, respectively. Figure 15 and Figure 16 provide maps of the degraded segments in District 11. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Table 10 and Table 11 list the corridors with degraded HOV lanes in District 11.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 15

**DISTRICT 11 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**



Figure 16

**DISTRICT 11 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**



Table 10

**DISTRICT 11 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
11	5	NB	SD	R30.700	SD	R38.500	2
11	15	NB	SD	M12.000	SD	M15.900	2
11	15	SB	SD	M19.800	SD	M15.900	2

Table 11

**DISTRICT 11 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
11	5	NB	SD	R30.700R	SD	R38.500	2
11	15	NB	SD	M12.000	SD	M23.700	2
11	15	SB	SD	M19.800	SD	M15.900	2

2.6. DISTRICT 12 ANALYSIS

District 12, located in Orange County, was established by the California State Legislature in 1988. The District has a population of 3.15 million people.⁴ District 12 is responsible for 284 centerline miles of highway and operates HOV lanes on Routes 5, 22, 55, 57, 91, 405 and 605.

Degradation increased from 171 lane-miles to 175 lane-miles between the first and second halves of 2015, respectively. Figures 17 and 18 provide maps of the degraded segments in District 12. Degraded segments along the same route are combined into corridors for easier reference. The corridors may include gaps of non-degraded segments. Tables 12 and 13 list the corridors with degraded HOV lanes in District 12.

⁴ State of California, Department of Finance. *E-4 Population Estimates*.
< <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/> >

Figure 17

**DISTRICT 12 DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**



Figure 18

**DISTRICT 12 DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**



Table 12

**DISTRICT 12 CORRIDORS WITH DEGRADED HOV LANES
JANUARY 1 TO JUNE 30, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
12	5	NB	ORA	11.299	ORA	34.302	2
12	5	SB	ORA	38.901	ORA	6.700	2
12	22	EB	ORA	R4.368	ORA	R11.600	2
12	22	WB	ORA	R11.600	ORA	R8.036	2
12	55	NB	ORA	R6.000	ORA	17.300	2
12	55	SB	ORA	17.300	ORA	R9.761	2
12	57	NB	ORA	14.700	ORA	R22.500	2
12	57	SB	ORA	R22.500	ORA	10.800L	2
12	91	EB	ORA	0.864	ORA	R9.859	2
12	91	WB	ORA	R9.870	ORA	R0.000	2
12	405	NB	ORA	0.230	LA	0.300	2
12	405	SB	LA	0.300	ORA	0.230	2

**Table 13****DISTRICT 12 CORRIDORS WITH DEGRADED HOV LANES
JULY 1 TO DECEMBER 31, 2015**

District	Route	Direction	Begin County	Begin Post Mile	End County	End Post Mile	Minimum Occupancy
12	5	NB	ORA	11.299	ORA	38.901	2
12	5	SB	ORA	38.901	ORA	6.700	2
12	22	EB	ORA	R4.368	ORA	R11.600	2
12	22	WB	ORA	R11.600	ORA	R8.036	2
12	55	NB	ORA	R6.000	ORA	17.300	2
12	55	SB	ORA	17.300	ORA	R6.000	2
12	57	NB	ORA	14.700	ORA	R22.500	2
12	57	SB	ORA	R22.500	ORA	10.800L	2
12	91	EB	ORA	5.361	ORA	R9.859	2
12	91	WB	ORA	R9.870	ORA	R0.000	2
12	405	NB	ORA	0.230	LA	0.300	2
12	405	SB	LA	0.300	ORA	0.230	2

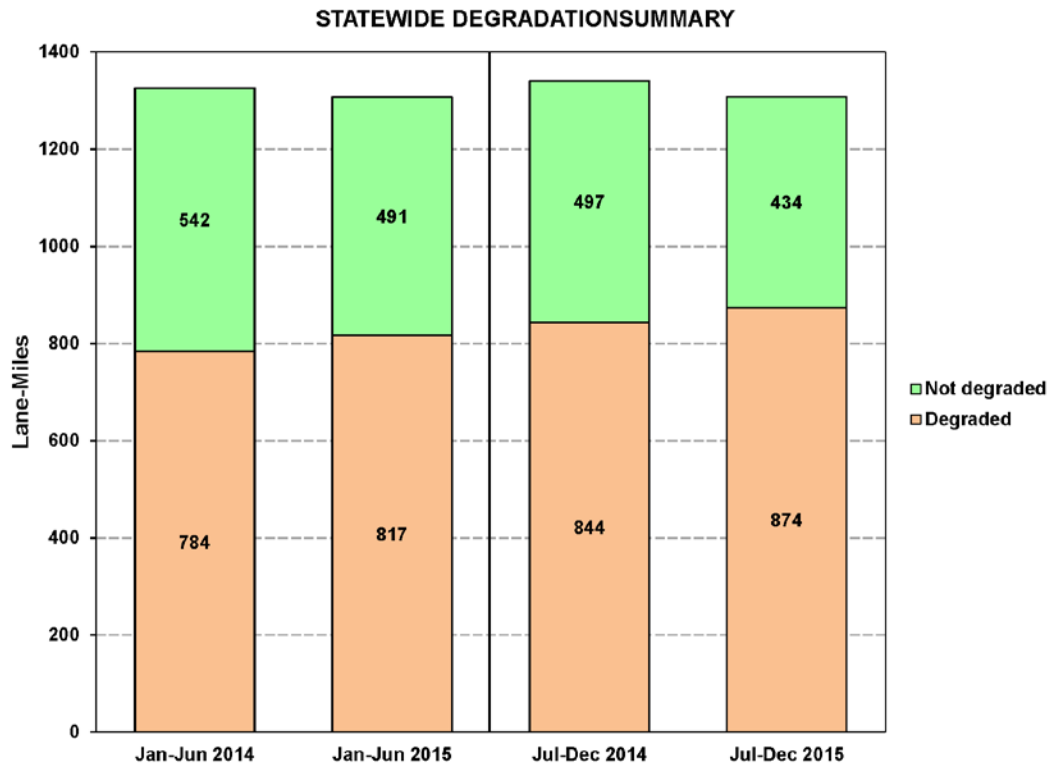
3. COMPARISON BETWEEN 2014 AND 2015

Figure 19 shows the comparison of the number of degraded HOV lane-miles between 2014 and 2015. More degradation was identified in 2015 than in 2014. The first halves of 2014 and 2015 showed a four percent increase in degradation (from 784 to 817 lane-miles). The second halves of 2014 and 2015 also showed a four percent increase in degradation (from 844 to 874 lane-miles). Statewide delay where vehicles were traveling at speeds of less than 45 mph⁵ increased from 141 million vehicle-hours of delay in 2014 to 144 million vehicle-hours of delay in 2015.

⁵ PeMS. Mobility Performance Report – Summary.
< http://pems.dot.ca.gov/?dnode=State&content=trends&tab=trd_totals>

Figure 19

2014 AND 2015 STATEWIDE DEGRADATION COMPARISON



NOTE: 1,341 lane-miles monitored in 2014; 1,308 lane-miles monitored in 2015

4. PERFORMANCE OF REMEDIATION STRATEGIES

The following remediation strategies were evaluated to compare before and after effects on traffic operations. Evaluation of other completed locations is planned for future reports due to conflicts precluding analysis such as nearby highway construction.

Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
3	99 SB	SAC R20.2	SAC 16.0	Construct southbound auxiliary lanes and widen onramps and offramps between Mack Road and Calvine Road/Cosumnes River Blvd. Project began construction in September 2010 and completed in December 2011. Project cost was \$6.6 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	March 2010 to Aug 2010	130	-8 days	-6%	Improving
After Remediation Implementation	July 2012 to Dec 2012	122			
	July 2013 to Dec 2013	95	-35 days	-27%	Improving
	July 2014 to Dec 2014	105	-25 days	-19%	Improving
	July 2015 to Dec 2015	121	-9 days	-7%	Improving

Analysis Discussion

The \$6.6 million project consisted of an additional auxiliary lane in the southbound direction of highway 99 in Sacramento between Mack Road and Calvine Road/Cosumnes River Blvd. As part of the improvements, onramps and offramps were also widened to meet geometric standards. The improvements provided additional weaving and merging space to smooth traffic flow. Analysis was conducted by annually reviewing six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is six months prior to construction. The analysis shows that traffic experienced an overall decrease in the number of peak hours where the average speed fell below 45 MPH. The first analysis period showed that the number of days where either AM or PM peak hour speeds were below 45 MPH decreased to 122, a decrease of 6%. Subsequent analysis periods showed decreases ranging from 7% to 27%, compared to before remediation. The results suggest that the addition of an auxiliary lane combined with improved ramp geometry provided operational benefits to the HOV lane segment. Even though the segment experienced operational improvements, the segment continues to be degraded in the 2015 report year. Caltrans will continue to monitor the segment and identify additional strategies available to supplement the improvements.

Performance of HOV Remediation Strategies
Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
4	101 SB	SM 6.6	SM 1.9	Construct southbound auxiliary lanes between Marsh Road and Embarcadero Road/Oregon Expressway. Project began construction in June 2012 and was completed in December 2012. Project cost was \$72 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	Dec 2011 to May 2012	65	-10 days	-15%	Improving
After Remediation Implementation	Jul 2013 to Dec 2013	55			
	Jul 2014 to Dec 2014	41	-24 days	-37%	Improving
	Jul 2015 to Dec 2015	116	+51 days	+44%	In Construction

Analysis Discussion

The project consisted of adding auxiliary lanes in both directions on Highway 101 in San Mateo county between Marsh Road and Embarcadero Road/Oregon Expressway. Other improvements include widening of onramps to include HOV bypass lanes and modifying existing ramp meters. Analysis was conducted by annually reviewing six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is six months prior to construction. The analysis shows that traffic experienced a decrease in the number of peak hours periods where the average speed fell below 45 MPH. Through 2014, the route showed decreases of 15% and 30%. Construction of the three-year Francisquito Creek bridge started in June 2015. The post-construction operation analysis for 2015 will be deferred until after the improvements are completed due to disruption to regular traffic patterns. Overall, the results suggest that the addition of an auxiliary lane, HOV bypass lanes on the onramp, and updated ramp metering facilities provided operational benefits for both general purpose lanes and the HOV lane. Even though the segment experienced operational improvements, the segment continues to be degraded in the 2015 report year. Caltrans will continue to monitor the segment and identify additional strategies available to supplement the improvements.

Performance of HOV Remediation Strategies

Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
4	101 SB	SCL R35.5	SCL 30.8	Add a general purpose lane between Story Road interchange and Yerba Buena interchange and modify Tully Road interchange. Project began construction in November 2010 and was completed in October 2012. Project cost was \$45 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	May 2010 to Oct 2010	31	-29 days	-94%	Improving
After Remediation Implementation	May 2013 to Oct 2013	2			
	May 2014 to Oct 2014	1	-30 days	-97%	Improving
	May 2015 to Oct 2015	0	-31 days	-100%	Improving

Analysis Discussion

The \$72 million project constructed an additional general-purpose lane on southbound Highway 101 in Santa Clara County from Story Road to Capitol Expressway and an auxiliary lane from Tully Road to Capitol Expressway. Onramps and offramps were widened and traffic signals were installed at intersections. The project removed merging and weaving conflicts. Analysis was conducted by annually reviewing six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is six months prior to the construction. The analysis shows that traffic experienced an overall decrease in the number of peak hours where the average speed fell below 45 MPH. The first analysis period showed that the number of number of days where either AM or PM peak hour speeds was below 45 MPH days decreased to two—a decrease of 94%. Subsequent analysis periods showed continued decreases from before remediation, including a 100% reduction during the 2015 analysis period. The results suggest that the addition of a general-purpose lane and an auxiliary lane as well as ramp widening and signalizations, provided operational benefits for both general purpose lanes and the HOV lane. The segment is not degraded but Caltrans will continue to monitor the segment.

Performance of HOV Remediation Strategies

Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
4	280 NB	SCL L4.7	SCL 14.0	Interchange modification at Route 280/Route 880/Stevens Creek junction to relieve congestion on Route 280. Construction began in September 2012, and ended in August 2015. Total project cost is \$62.1 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	Sep 2012 to Feb 2013	108	-2 day	-2%	Improving
After Remediation Implementation	Jul 2015 to Dec 2015	106			

Analysis Discussion

A project at the 280/880/Stevens Creek Boulevard interchanges improved the traffic flow, safety and access. Improvements included modifications to the freeway-to-freeway intersection of State Route 17 (SR-17)/I-280/I-880 freeway interchange, interchange reconfiguration by widening and realigning ramps, a new direct connector from northbound I-280 to northbound I-880, and an offramp added from southbound I-880 to Monroe Street. Analysis was conducted by annually reviewing six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is six months prior to the construction. The analysis shows that traffic experienced an overall decrease in the number of peak hours where the average speed fell below 45 MPH. The analysis showed that the number of days where either AM or PM peak hour speeds was below 45 MPH decreased by 2%. The results suggests that the interchange improvements provided operational benefits for HOV lane. Even though the segment experienced operational improvements, the segment continues to be degraded in the 2015 report year. Caltrans will continue to monitor the segment and identify additional strategies available to supplement the improvements.

Performance of HOV Remediation Strategies

Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
7	14 SB	LA 29.3	LA 24.8	Construct direct HOV connector ramps between the SR-14 and I-5 freeways. Project began construction in July 2008 and was completed in January 2013. Project cost was \$179 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	Jan 2010 to June 2010	15	4 days	27%	Additional Strategies Required
After Remediation Implementation	Aug 2013 to Jan 2014	19			
	Aug 2014 to Jan 2015	19	4 days	27%	Additional Strategies Required

Analysis Discussion

The project constructed direct connector ramps that allowed HOV lane users to travel between the SR-14 and I-5 freeways without leaving the HOV lane. Additional improvements include the West Sylmar overhead bridge widening, the southbound I-5 truck route undercrossing, and the mixed-flow connectors between SR-14 and I-5. Analysis was conducted by annually reviewing six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is from six months prior to the implementation of significant traffic staging in July 2010, since construction activities prior to that time were primarily minor lane restriping or off-highway structures-related activities. The analysis shows that traffic experienced a minor increase in the number of peak hours where the average speed fell below 45 MPH. The analysis showed an increase of four days for both post-construction analysis periods. The results suggests that the addition of an HOV direct connector along with general purpose lane widening maintained most of the operational performance of the HOV lane on this route segment. Overall, the number of locations where the average speed fell below 45 MPH is substantially lower than other study locations. The segment continues to be considered slightly degraded for the 2015 report year. Caltrans will continue to monitor the segment and identify additional strategies available to supplement the improvements.

Performance of HOV Remediation Strategies

Segment and Remediation Strategy Description

District	Route and Direction	Begin County and Post Mile	End County and Post Mile	Description of Remediation Strategy
7	5 NB	LA 42.4	LA 45.6	Construct direct HOV connector ramps between the I-5 and SR-4 freeways. Project began construction in July 2008 and was completed in January 2013. Project cost is \$179 million.

Comparison of Changes Before and After Remediation Strategy Implementation

	Six month analysis period (180 days)	Number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: change in the number of days where either AM or PM peak hour speeds are below 45 MPH	After remediation: percentage change in the days where either AM or PM peak hour speeds are below 45 MPH	General effects of remediation on HOV operations performance
Before Remediation Implementation	Jan 2010 to June 2010	61	-27 days	-44%	Improving
After Remediation Implementation	Aug 2013 to Jan 2014	34			
	Aug 2014 to Jan 2015	42	-19 days	-31%	Improving

Analysis Discussion

The project constructed direct connector ramps that allowed HOV lane users to travel between the I-5 and SR-14 freeways without leaving the HOV lane. HOV lanes were added to the interchange area between the I-5 and SR-14 freeways. Additional improvements include the West Sylmar overhead bridge widening, the southbound I-5 truck route undercrossing, and the mixed-flow connectors between I-5 and SR-14. Analysis was conducted by annually reviewing six six-month analysis periods of traffic data following six months of traffic normalization after construction. The post-construction data was compared to pre-construction data. Pre-construction data is from six months prior to the implementation of significant traffic staging in July 2010 since construction activities prior to that time were primarily minor lane restriping or off-highway structures-related activities. The analysis shows that traffic experienced an overall decrease in the number of peak hours where the average speed fell below 45 MPH. The results suggests that the addition of an HOV direct connector along with general-purpose lane widening provided operational benefits for the HOV lane on this route segment. The strategy provided incremental improvements since the segment continues to be degraded as of the 2015 report year possibly due to the overall increase in VMT on the HOV lanes since project completion. Caltrans will continue to monitor the segment and identify improvement strategies.

5. CONCLUSION

In 2015, HOV facilities carried over 317 million VMT during the morning peak hour. During the evening peak hour, this number increased to over 387 million VMT. The levels of traffic demand and the current threshold for degradation presents challenges for California to achieve the federal performance standard requirement.

Similar to previous years, the HOV network experienced more degradation in the second half of the year than the first half. Annual data shows an overall increase in congestion on the freeway system in the latter half of the year, particularly after school begins in the late summer. These trends suggest that recurrent congestion or other factors could cause degradation. Other factors include:

- Motorists from the general-purpose lanes merging into the lane nearest the end of an HOV facility and backing up traffic into the HOV lane.
- Lane change maneuvers from vehicles attempting to enter or exit the HOV lanes. A research study is being conducted to determine methodology for optimizing the most effective locations for ingress and egress locations on limited access control HOV lanes.
- Traffic disruptions on the highways due to severe weather or traffic incidents, both on or outside of the HOV lane. Caltrans continues to investigate a long-term methodology to systematically identify such occurrences and exclude the freeway segments from degradation analysis.

The connection between exempted vehicles and degradation has yet to be established. Traffic counts were conducted in the fall of 2016, and planned in the spring of 2017 to determine the distribution of vehicle occupancy and classifications—including exempted vehicles.

Caltrans reviewed the data to analyze possible causes of degradation and developed an action plan to bring degraded HOV facilities into compliance within 180 days. Since degradation tends to increase in the second half of the year, Caltrans and the Federal Highway Administration have agreed that action will be taken only on facilities identified as degraded in the second half of 2015. Evaluation of remediation strategies suggests Caltrans is making progress in improving operational performance. While additional remediation strategies are being developed and implemented, CT will continue to monitor the effectiveness of remediation plans and to refine or add additional strategies as needed.

APPENDIX

Table A-1						
DISTRIBUTION OF HYBRID AND ILEV DECALS BY COUNTY						
County	Number of Green Hybrid Decals as of 12/31/2015	Number of White ILEV Decals as of 12/31/2015		County	Number of Green Hybrid Decals as of 12/31/2015	Number of White ILEV Decals as of 12/31/2015
Alameda	5,824	8,375		Placer	683	746
Alpine	3	3		Plumas	3	3
Amador	10	9		Riverside	2,587	1,772
Butte	27	23		Sacramento	1,556	1,813
Calaveras	13	11		San Benito	67	32
Colusa		2		San Bernardino	2,607	1,334
Contra Costa	3,547	3,900		San Diego	4,802	5,927
Del Norte	2			San Francisco	1,360	2,987
El Dorado	298	232		San Joaquin	416	274
Fresno	135	332		San Luis Obispo	134	78
Glenn	5	8		San Mateo	2,914	4,517
Humboldt	86	13		Santa Barbara	208	167
Imperial	13	8		Santa Clara	11,592	16,596
Inyo	6	6		Santa Cruz	728	638
Kern	126	77		Shasta	28	4
Kings	4	7		Sierra	1	2
Lake	24	11		Siskiyou	5	1
Lassen	2	6		Solano	874	637
Los Angeles	25,004	24,920		Sonoma	1,433	1,285
Madera	6	50		Stanislaus	138	65
Marin	1,166	1,486		Sutter	14	8
Mariposa	2	5		Tehama	18	2
Mendocino	66	33		Trinity	3	
Merced	105	24		Tulare	25	44
Modoc	1			Tuolumne	9	7
Mono	3	2		Ventura	1,645	929
Monterey	326	256		Yolo	258	288
Napa	250	258		Yuba	13	10
Nevada	50	37		Out-of-State	85	1,628
Orange	12,112	11,683		Unknown	1,578	1,189

Total	85,000	94,760
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Table A-2

2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
3	50	EB	SAC	12.5	SAC	16.311	3.811	No Data	No Data	No Data	No Data
3	50	EB	SAC	16.312	SAC	20.123	3.811	7.8%	Not Degraded	7.6%	Not Degraded
3	50	EB	SAC	20.124	ED	0.8	3.812	0.8%	Not Degraded	0.0%	Not Degraded
3	50	WB	ED	0.8	SAC	20.125	3.811	0.8%	Not Degraded	1.5%	Not Degraded
3	50	WB	SAC	20.124	SAC	16.313	3.811	1.6%	Not Degraded	23.5%	Slightly Degraded
3	50	WB	SAC	16.312	SAC	12.5	3.812	1.6%	Not Degraded	2.3%	Not Degraded
3	80	EB	SAC	M9.399	SAC	13.902	4.098	2.3%	Not Degraded	0.8%	Not Degraded
3	80	EB	SAC	13.903	PLA	0	4.097	1.6%	Not Degraded	0.0%	Not Degraded
3	80	WB	PLA	0	SAC	13.904	4.096	18.6%	Slightly Degraded	28.0%	Slightly Degraded
3	80	WB	SAC	13.903	SAC	M9.400	4.098	48.8%	Slightly Degraded	62.9%	Very Degraded
3	99	NB	SAC	11.9	SAC	16.03	4.131	16.3%	Slightly Degraded	22.7%	Slightly Degraded
3	99	NB	SAC	16.031	SAC	20.165	4.134	80.6%	Extremely Degraded	78.8%	Extremely Degraded
3	99	NB	SAC	20.166	SAC	R24.300	4.134	45.7%	Slightly Degraded	62.1%	Very Degraded
3	99	SB	SAC	R24.300	SAC	20.167	4.133	81.4%	Extremely Degraded	86.4%	Extremely Degraded
3	99	SB	SAC	20.168	SAC	16.034	4.134	85.3%	Extremely Degraded	91.7%	Extremely Degraded
3	99	SB	SAC	16.055	SAC	11.925	4.130	0.8%	Not Degraded	2.3%	Not Degraded
4	4	EB	CC	R15.800	CC	R20.088	4.288	3.1%	Not Degraded	0.8%	Not Degraded
4	4	EB	CC	R20.088	CC	24.4	4.288	0.0%	Not Degraded	4.5%	Not Degraded
4	4	WB	CC	24.4	CC	R20.088	4.288	7.8%	Not Degraded	16.7%	Slightly Degraded



Table A-2

2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A2											
4	4	WB	CC	R20.088	CC	R15.800	4.288	10.9%	Slightly Degraded	12.1%	Slightly Degraded
4	80	EB	ALA	2.5	ALA	6.552	4.052	98.4%	Extremely Degraded	95.5%	Extremely Degraded
4	80	EB	ALA	6.552	CC	2.582	4.053	27.9%	Slightly Degraded	53.0%	Very Degraded
4	80	EB	CC	2.582	CC	6.634	4.052	72.9%	Very Degraded	87.1%	Extremely Degraded
4	80	EB	CC	6.634	CC	9.9	3.266	10.9%	Slightly Degraded	60.6%	Very Degraded
4	80	EB	SOL	0.5	SOL	0.6	0.100	No Data	No Data	No Data	No Data
4	80	WB	SOL	R11.400	SOL	5.6	5.800	0.0%	Not Degraded	0.0%	Not Degraded
4	80	WB	SOL	0.9	CC	9.9	5.139	0.0%	Not Degraded	0.0%	Not Degraded
4	80	WB	CC	9.9	CC	7.446	2.454	No Data	No Data	No Data	No Data
4	80	WB	CC	7.446	CC	2.923	4.523	31.8%	Slightly Degraded	43.9%	Slightly Degraded
4	80	WB	CC	2.923	ALA	6.423	4.523	74.4%	Very Degraded	75.0%	Extremely Degraded
4	85	NB	SCL	0	SCL	4.795	4.795	0.8%	Not Degraded	2.3%	Not Degraded
4	85	NB	SCL	4.795	SCL	9.59	4.795	55.0%	Very Degraded	48.5%	Slightly Degraded
4	85	NB	SCL	9.59	SCL	R14.210	4.796	76.0%	Extremely Degraded	68.9%	Very Degraded
4	85	NB	SCL	R14.210	SCL	R19.005	4.795	13.2%	Slightly Degraded	25.8%	Slightly Degraded
4	85	NB	SCL	R19.005	SCL	R23.800	4.795	8.5%	Not Degraded	34.1%	Slightly Degraded
4	85	SB	SCL	R23.800	SCL	R19.005	4.795	55.0%	Very Degraded	63.6%	Very Degraded
4	85	SB	SCL	R19.005	SCL	R14.210	4.795	92.2%	Extremely Degraded	84.8%	Extremely Degraded



Table A-2

2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A3											
4	85	SB	SCL	R14.210	SCL	9.59	4.796	34.9%	Slightly Degraded	78.0%	Extremely Degraded
4	85	SB	SCL	9.59	SCL	4.795	4.795	13.2%	Slightly Degraded	26.5%	Slightly Degraded
4	85	SB	SCL	4.795	SCL	0	4.795	0.0%	Not Degraded	1.5%	Not Degraded
4	87	NB	SCL	0.2	SCL	3.748	3.548	58.1%	Very Degraded	60.6%	Very Degraded
4	87	NB	SCL	3.748	SCL	7.297	3.549	27.1%	Slightly Degraded	61.4%	Very Degraded
4	87	SB	SCL	7.297	SCL	3.748	3.549	31.8%	Slightly Degraded	29.5%	Slightly Degraded
4	87	SB	SCL	3.748	SCL	0.2	3.748	0.0%	Not Degraded	1.5%	Not Degraded
4	101	NB	MRN	3.8	MRN	8.323	4.523	91.5%	Extremely Degraded	93.2%	Extremely Degraded
4	101	NB	MRN	8.323	MRN	12.846	4.523	1.6%	Not Degraded	6.1%	Not Degraded
4	101	NB	MRN	12.846	MRN	17.369	4.523	3.1%	Not Degraded	0.8%	Not Degraded
4	101	NB	MRN	17.369	MRN	R21.892	4.523	0.8%	Not Degraded	0.0%	Not Degraded
4	101	NB	SON	15.2	SON	18.4	3.200	3.9%	Not Degraded	18.2%	Slightly Degraded
4	101	NB	SON	18.4	SON	21.6	3.200	0.0%	Not Degraded	1.5%	Not Degraded
4	101	SB	SON	21.6	SON	15.2	6.400	0.0%	Not Degraded	0.0%	Not Degraded
4	101	SB	MRN	18.9	MRN	12.846	6.054	72.1%	Very Degraded	57.6%	Very Degraded
4	101	SB	MRN	12.846	MRN	8.323	4.523	3.1%	Not Degraded	7.6%	Not Degraded
4	101	NB	MRN	8.323	MRN	3.8	4.523	0.8%	Not Degraded	2.3%	Not Degraded
4	101	NB	SCL	R17.000	SCL	R21.724	4.724	0.0%	Not Degraded	15.9%	Slightly Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A4											
4	101	NB	SCL	R21.724	SCL	R26.448	4.724	0.0%	Not Degraded	0.0%	Not Degraded
4	101	NB	SCL	R26.448	SCL	30.81	4.724	3.1%	Not Degraded	6.8%	Not Degraded
4	101	NB	SCL	30.81	SCL	R35.534	4.724	52.7%	Very Degraded	47.7%	Slightly Degraded
4	101	NB	SCL	R35.534	SCL	40.254	4.724	70.5%	Very Degraded	70.5%	Very Degraded
4	101	NB	SCL	40.254	SCL	44.978	4.724	63.6%	Very Degraded	68.2%	Very Degraded
4	101	NB	SCL	44.978	SCL	49.702	4.724	8.5%	Not Degraded	12.1%	Slightly Degraded
4	101	NB	SCL	49.702	SM	1.876	4.724	0.0%	Not Degraded	3.8%	Not Degraded
4	101	NB	SM	1.876	SM	6.6	4.724	19.4%	Slightly Degraded	8.3%	Not Degraded
4	101	SB	SM	6.6	SM	1.876	4.724	70.5%	Very Degraded	87.9%	Extremely Degraded
4	101	SB	SCL	R17.000	SCL	R12.276	4.724	No Data	No Data	No Data	No Data
4	101	SB	SM	1.876	SCL	49.702	4.724	33.3%	Slightly Degraded	74.2%	Very Degraded
4	101	SB	SCL	49.702	SCL	44.978	4.724	5.4%	Not Degraded	31.8%	Slightly Degraded
4	101	SB	SCL	44.978	SCL	40.254	4.724	95.3%	Extremely Degraded	86.4%	Extremely Degraded
4	101	SB	SCL	40.254	SCL	R35.534	4.724	88.4%	Extremely Degraded	79.5%	Extremely Degraded
4	101	SB	SCL	R35.534	SCL	30.81	4.724	3.9%	Not Degraded	0.0%	Not Degraded
4	101	SB	SCL	30.81	SCL	R26.448	4.724	0.0%	Not Degraded	0.0%	Not Degraded
4	101	SB	SCL	R26.448	SCL	R21.724	4.724	1.6%	Not Degraded	7.6%	Not Degraded
4	101	SB	SCL	R21.724	SCL	R17.000	4.724	78.3%	Extremely Degraded	82.6%	Extremely Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A5											
4	237	EB	SCL	3	SCL	R6.241	3.241	91.5%	Extremely Degraded	87.9%	Extremely Degraded
4	237	EB	SCL	R6.241	SCL	9.5	3.241	91.5%	Extremely Degraded	88.6%	Extremely Degraded
4	237	WB	SCL	9.5	SCL	R6.265	3.266	0.8%	Not Degraded	2.3%	Not Degraded
4	237	WB	SCL	R6.265	SCL	3	3.265	44.2%	Slightly Degraded	51.5%	Very Degraded
4	237	WB	SCL	3	SCL	R0.000	3.057	No Data	No Data	No Data	No Data
4	280	NB	SCL	L4.700	SCL	6.879	3.561	72.1%	Very Degraded	69.7%	Very Degraded
4	280	NB	SCL	6.879	SCL	10.439	3.560	51.2%	Very Degraded	57.6%	Very Degraded
4	280	NB	SCL	10.439	SCL	14	3.561	48.1%	Slightly Degraded	62.1%	Very Degraded
4	280	NB	SCL	14	SCL	17.561	3.561	No Data	No Data	No Data	No Data
4	280	SB	SCL	14	SCL	10.439	3.561	15.5%	Slightly Degraded	20.5%	Slightly Degraded
4	280	SB	SCL	10.439	SCL	6.879	3.560	62.8%	Very Degraded	50.0%	Very Degraded
4	280	SB	SCL	6.879	SCL	L4.700	3.561	40.3%	Slightly Degraded	53.0%	Very Degraded
4	280	SB	SCL	L4.700	SCL	R1.139	3.561	No Data	No Data	No Data	No Data
4	580	EB	ALA	13.2	ALA	10.485	2.715	0.8%	Not Degraded	0.0%	Not Degraded
4	580	EB	ALA	10.485	ALA	R7.800	2.714	94.6%	Extremely Degraded	56.1%	Very Degraded
4	680	NB	ALA	R21.600	CC	R3.898	4.177	0.0%	Not Degraded	1.5%	Not Degraded
4	680	NB	CC	R3.898	CC	R8.100	4.177	48.1%	Slightly Degraded	59.8%	Very Degraded
4	680	NB	CC	R8.100	CC	R11.900	3.800	79.8%	Extremely Degraded	80.3%	Extremely Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A6											
4	680	NB	CC	16.3	CC	20.3	4.199	11.6%	Slightly Degraded	27.3%	Slightly Degraded
4	680	NB	CC	20.3	CC	24.5	4.200	0.0%	Not Degraded	1.5%	Not Degraded
4	680	SB	CC	23.1	CC	R18.579	4.720	0.8%	Not Degraded	0.0%	Not Degraded
4	680	SB	ALA	M2.385	SCL	M7.600	4.720	0.0%	Not Degraded	5.3%	Not Degraded
4	680	SB	CC	R18.579	CC	16.3	2.279	69.8%	Very Degraded	68.9%	Very Degraded
4	680	SB	CC	R11.900	CC	R9.248	2.652	3.1%	Not Degraded	0.8%	Not Degraded
4	680	SB	CC	R9.248	CC	R4.503	4.720	13.2%	Slightly Degraded	5.3%	Not Degraded
4	680	SB	CC	R4.503	ALA	R21.600	4.782	0.0%	Not Degraded	3.0%	Not Degraded
4	680	SB	ALA	R11.05	ALA	R6.980	4.070	1.6%	Not Degraded	0.8%	Not Degraded
4	680	SB	ALA	R6.980	ALA	M2.385	4.720	1.6%	Not Degraded	0.0%	Not Degraded
4	880	NB	SCL	8.7	ALA	3.089	4.616	91.5%	Extremely Degraded	75.0%	Extremely Degraded
4	880	NB	ALA	3.089	ALA	7.705	4.616	43.4%	Slightly Degraded	65.2%	Very Degraded
4	880	NB	ALA	7.705	ALA	12.321	4.616	88.4%	Extremely Degraded	89.4%	Extremely Degraded
4	880	NB	ALA	12.321	ALA	19.3	6.979	89.9%	Extremely Degraded	93.2%	Extremely Degraded
4	880	NB	ALA	R34.700	ALA	R35.400	0.700	66.7%	Very Degraded	1.5%	Not Degraded
4	880	NB	SCL	0	SCL	1.19	1.190		Not Degraded	No Data	No Data
4	880	SB	ALA	22.7	ALA	17.855	4.845	40.3%	Slightly Degraded	54.5%	Very Degraded
4	880	SB	ALA	17.855	ALA	13.009	4.846	48.8%	Slightly Degraded	71.2%	Very Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A7											
4	880	SB	ALA	13.009	ALA	8.164	4.845	61.2%	Very Degraded	62.1%	Very Degraded
4	880	SB	ALA	8.164	ALA	3.318	4.846	70.5%	Very Degraded	43.9%	Slightly Degraded
4	880	SB	ALA	3.318	SCL	8.7	4.845	18.6%	Slightly Degraded	35.6%	Slightly Degraded
7	5	NB	LA	39.4	LA	42.389	2.989	26.4%	Slightly Degraded	24.2%	Slightly Degraded
7	5	NB	LA	42.389	LA	R45.600	2.988	54.3%	Very Degraded	59.8%	Very Degraded
7	5	SB	LA	R45.600	LA	42.389	2.988	5.4%	Not Degraded	9.8%	Not Degraded
7	5	SB	LA	42.389	LA	39.4	2.989	24.0%	Slightly Degraded	9.1%	Not Degraded
7	5	SB	LA	39.4	LA	36.412	2.988	No Data	No Data	No Data	No Data
7	10	EB	LA	17	LA	20.904	4.559	19.4%	Slightly Degraded	25.8%	Slightly Degraded
7	10	EB	LA	20.904	LA	25.464	4.560	1.6%	Not Degraded	2.3%	Not Degraded
7	10	EB	LA	25.464	LA	31.2	5.736	66.7%	Very Degraded	79.5%	Extremely Degraded
7	10	EB	LA	42.4	LA	45.33	2.930	71.3%	Very Degraded	93.2%	Extremely Degraded
7	10	EB	LA	45.33	LA	48.26	2.930	48.1%	Slightly Degraded	89.4%	Extremely Degraded
7	10	WB	LA	48.26	LA	45.33	2.930	1.6%	Not Degraded	0.8%	Not Degraded
7	10	WB	LA	45.33	LA	42.4	2.930	1.6%	Not Degraded	0.0%	Not Degraded
7	10	WB	LA	31.2	LA	25.464	5.736	20.9%	Slightly Degraded	52.3%	Very Degraded
7	10	WB	LA	25.464	LA	20.904	4.560	49.6%	Slightly Degraded	58.3%	Very Degraded
7	10	WB	LA	20.904	LA	17	4.559	37.2%	Slightly Degraded	30.3%	Slightly Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A8											
7	14	NB	LA	R24.800	LA	R29.281	4.481	89.9%	Extremely Degraded	93.9%	Extremely Degraded
7	14	NB	LA	R29.281	LA	33.812	4.482	17.1%	Slightly Degraded	30.3%	Slightly Degraded
7	14	NB	LA	33.812	LA	38.293	4.481	0.0%	Not Degraded	0.0%	Not Degraded
7	14	NB	LA	38.293	LA	42.775	4.482	1.6%	Not Degraded	1.5%	Not Degraded
7	14	NB	LA	42.775	LA	R47.256	4.481	18.6%	Slightly Degraded	19.7%	Slightly Degraded
7	14	NB	LA	R47.256	LA	R51.737	4.481	No Data	No Data	No Data	No Data
7	14	NB	LA	R51.737	LA	R56.219	4.482	No Data	No Data	No Data	No Data
7	14	NB	LA	R56.219	LA	R60.700	4.481	0.0%	Not Degraded	0.8%	Not Degraded
7	14	SB	LA	R60.700	LA	R56.219	4.481	0.0%	Not Degraded	0.0%	Not Degraded
7	14	SB	LA	R56.219	LA	R51.737	4.482	No Data	No Data	No Data	No Data
7	14	SB	LA	R51.737	LA	R47.256	4.481	No Data	No Data	No Data	No Data
7	14	SB	LA	R47.256	LA	42.775	4.481	0.0%	Not Degraded	0.0%	Not Degraded
7	14	SB	LA	42.775	LA	38.293	4.482	1.6%	Not Degraded	0.8%	Not Degraded
7	14	SB	LA	38.293	LA	33.812	4.481	0.8%	Not Degraded	2.3%	Not Degraded
7	14	SB	LA	33.812	LA	R29.281	4.482	3.9%	Not Degraded	9.8%	Not Degraded
7	14	SB	LA	R29.281	LA	R24.788	4.493	21.7%	Slightly Degraded	23.5%	Slightly Degraded
7	57	NB	LA	R0.000	LA	R4.518R	4.500	No Data	No Data	No Data	No Data
7	57	SB	LA	R4.518L	LA	R0.000	4.500	No Data	No Data	No Data	No Data



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A9											
7	60	EB	LA	R23.000	LA	R26.725	3.725	45.7%	Slightly Degraded	44.7%	Slightly Degraded
7	60	EB	LA	R26.725	LA	R30.450	3.725	59.7%	Very Degraded	43.2%	Slightly Degraded
7	60	WB	LA	R30.450	LA	R26.725	3.725	29.5%	Slightly Degraded	27.3%	Slightly Degraded
7	60	WB	LA	R26.725	LA	R23.000	3.725	10.9%	Slightly Degraded	23.5%	Slightly Degraded
7	91	EB	LA	R6.400	LA	R11.167	4.767	96.1%	Extremely Degraded	98.5%	Extremely Degraded
7	91	EB	LA	R11.167	LA	R15.933	4.766	93.8%	Extremely Degraded	93.9%	Extremely Degraded
7	91	EB	LA	R15.933	LA	R20.700	4.767	49.6%	Slightly Degraded	66.7%	Very Degraded
7	91	WB	LA	R20.700	LA	R15.933	4.767	20.9%	Slightly Degraded	60.6%	Very Degraded
7	91	WB	LA	R15.933	LA	R11.167	4.766	35.7%	Slightly Degraded	52.3%	Very Degraded
7	91	WB	LA	R11.167	LA	6.012	5.165	2.3%	Not Degraded	0.8%	Not Degraded
7	105	EB	LA	R2.200	LA	R6.173	3.973	97.7%	Extremely Degraded	94.7%	Extremely Degraded
7	105	EB	LA	R6.173	LA	R10.145	3.972	94.6%	Extremely Degraded	96.2%	Extremely Degraded
7	105	EB	LA	R10.145	LA	R14.117	3.972	0.8%	Not Degraded	3.8%	Not Degraded
7	105	EB	LA	R14.117	LA	R18.090	3.973	51.2%	Very Degraded	11.4%	Slightly Degraded
7	105	WB	LA	R18.090	LA	R14.117	3.973	3.9%	Not Degraded	4.5%	Not Degraded
7	105	WB	LA	R14.117	LA	R10.145	3.972	17.1%	Slightly Degraded	15.2%	Slightly Degraded
7	105	WB	LA	R10.145	LA	R6.172	3.973	93.8%	Extremely Degraded	86.4%	Extremely Degraded
7	105	WB	LA	R6.172	LA	R2.200	3.972	0.0%	Not Degraded	2.3%	Not Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A10											
7	110	NB	LA	9.8	LA	13.367	3.567	17.1%	Slightly Degraded	33.3%	Slightly Degraded
7	110	NB	LA	13.367	LA	16.933	3.566	61.2%	Very Degraded	62.1%	Very Degraded
7	110	NB	LA	16.933	LA	20.5	3.567	81.4%	Extremely Degraded	82.6%	Extremely Degraded
7	110	SB	LA	20.5	LA	16.933	3.567	2.3%	Not Degraded	92.4%	Extremely Degraded
7	110	SB	LA	16.933	LA	13.367	3.566	45.7%	Slightly Degraded	43.9%	Slightly Degraded
7	110	SB	LA	13.367	LA	9.8	3.567	1.6%	Not Degraded	0.8%	Not Degraded
7	118	EB	LA	R0.000	LA	R3.800	3.800	2.3%	Not Degraded	3.8%	Not Degraded
7	118	EB	LA	R3.800	LA	R7.600	3.800	7.0%	Not Degraded	18.9%	Slightly Degraded
7	118	EB	LA	R7.600	LA	R11.400R	3.800	61.2%	Very Degraded	56.1%	Very Degraded
7	118	EB	LA	R11.400R	LA	R14.269	3.800	No Data	No Data	No Data	No Data
7	118	WB	LA	R11.400L	LA	R7.600	3.800	9.3%	Not Degraded	18.9%	Slightly Degraded
7	118	WB	LA	R7.600	LA	R3.800	3.800	1.6%	Not Degraded	0.8%	Not Degraded
7	118	WB	LA	R3.800	LA	R0.000	3.800	1.6%	Not Degraded	1.5%	Not Degraded
7	118	WB	LA	R0.000	VEN	R28.800	3.800	No Data	No Data	No Data	No Data
7	134	EB	LA	0	LA	4.428	4.428	46.5%	Slightly Degraded	63.6%	Very Degraded
7	134	EB	LA	4.428	LA	R8.855	4.427	72.1%	Very Degraded	87.9%	Extremely Degraded
7	134	EB	LA	R8.855	LA	R13.283	4.428	2.3%	Not Degraded	1.5%	Not Degraded
7	134	WB	LA	R13.300	LA	R8.872	4.428	3.1%	Not Degraded	12.9%	Slightly Degraded



Table A-2

2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A11											
7	134	WB	LA	R8.872	LA	4.428	4.427	1.6%	Not Degraded	0.8%	Not Degraded
7	134	WB	LA	4.428	LA	0	4.428	27.1%	Slightly Degraded	34.1%	Slightly Degraded
7	170	NB	LA	R14.500	LA	R17.505	3.005	9.3%	Not Degraded	0.0%	Not Degraded
7	170	NB	LA	R17.505	LA	R20.510	3.005	67.4%	Very Degraded	22.7%	Slightly Degraded
7	170	SB	LA	R20.510	LA	R17.505	3.005	2.3%	Not Degraded	11.4%	Slightly Degraded
7	170	SB	LA	R17.505	LA	R14.500	3.005	71.3%	Very Degraded	72.7%	Very Degraded
7	210	EB	LA	R25.000	LA	L29.568	4.568	70.5%	Very Degraded	75.0%	Extremely Degraded
7	210	EB	LA	L29.568	LA	R33.827	4.568	97.7%	Extremely Degraded	95.5%	Extremely Degraded
7	210	EB	LA	R33.827	LA	R38.396	4.569	98.4%	Extremely Degraded	96.2%	Extremely Degraded
7	210	EB	LA	R38.396	LA	R42.964	4.568	85.3%	Extremely Degraded	91.7%	Extremely Degraded
7	210	EB	LA	R42.964	LA	R47.532	4.568	69.8%	Very Degraded	72.7%	Very Degraded
7	210	EB	LA	R47.532	LA	R52.100	4.568	65.1%	Very Degraded	64.4%	Very Degraded
7	210	WB	LA	R52.100	LA	R47.532	4.568	2.3%	Not Degraded	5.3%	Not Degraded
7	210	WB	LA	R47.532	LA	R42.964	4.568	8.5%	Not Degraded	11.4%	Slightly Degraded
7	210	WB	LA	R42.964	LA	R38.395	4.569	45.0%	Slightly Degraded	44.7%	Slightly Degraded
7	210	WB	LA	R38.395	LA	R33.827	4.568	85.3%	Extremely Degraded	81.1%	Extremely Degraded
7	210	WB	LA	R33.827	LA	L29.568	4.568	95.3%	Extremely Degraded	97.0%	Extremely Degraded
7	210	WB	LA	L29.568	LA	R25.000	4.568	48.8%	Slightly Degraded	71.2%	Very Degraded



Table A-2

2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A12											
7	405	NB	LA	0	LA	4.842	4.842	56.6%	Very Degraded	56.8%	Very Degraded
7	405	NB	LA	4.842	LA	9.861	4.843	16.3%	Slightly Degraded	22.0%	Slightly Degraded
7	405	NB	LA	9.861	LA	14.703	4.842	96.1%	Extremely Degraded	91.7%	Extremely Degraded
7	405	NB	LA	14.703	LA	19.546	4.843	89.1%	Extremely Degraded	78.0%	Extremely Degraded
7	405	NB	LA	19.546	LA	24.388	4.842	93.0%	Extremely Degraded	86.4%	Extremely Degraded
7	405	NB	LA	24.388	LA	26.4	2.012	28.7%	Slightly Degraded	28.0%	Slightly Degraded
7	405	NB	LA	38.915	LA	43.758	5.158	97.7%	Extremely Degraded	95.5%	Extremely Degraded
7	405	NB	LA	43.758	LA	48.6	4.842	60.5%	Very Degraded	92.4%	Extremely Degraded
7	405	SB	LA	48.6	LA	43.758	4.842	2.3%	Not Degraded	0.8%	Not Degraded
7	405	SB	LA	4.842	LA	0	4.842	82.2%	Extremely Degraded	86.4%	Extremely Degraded
7	405	SB	LA	0	LA	19.336	4.842	No Data	No Data	No Data	No Data
7	405	SB	LA	43.758	LA	38.915	4.843	85.3%	Extremely Degraded	96.2%	Extremely Degraded
7	405	SB	LA	38.915	LA	34.073	4.842	20.2%	Slightly Degraded	94.6%	Extremely Degraded
7	405	SB	LA	34.073	LA	30.7	3.373	20.2%	Slightly Degraded	63.6%	Very Degraded
7	405	SB	LA	26.4	LA	24.388	2.012	60.5%	Very Degraded	64.4%	Very Degraded
7	405	SB	LA	24.388	LA	19.546	4.842	79.1%	Extremely Degraded	69.7%	Very Degraded
7	405	SB	LA	19.546	LA	14.703	4.843	92.2%	Extremely Degraded	89.4%	Extremely Degraded
7	405	SB	LA	14.703	LA	9.861	4.842	97.7%	Extremely Degraded	95.5%	Extremely Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A13											
7	405	SB	LA	9.861	LA	4.842	4.843	54.3%	Very Degraded	70.5%	Very Degraded
7	605	NB	LA	R0.000	LA	R4.140	4.140	1.6%	Not Degraded	6.8%	Not Degraded
7	605	NB	LA	R4.140	LA	R8.280	4.140	31.0%	Slightly Degraded	39.4%	Slightly Degraded
7	605	NB	LA	R8.280	LA	R12.420	4.140	38.0%	Slightly Degraded	64.4%	Very Degraded
7	605	NB	LA	R12.420	LA	R16.560	4.140	52.7%	Very Degraded	72.0%	Very Degraded
7	605	NB	LA	R16.560	LA	20.7	4.140	14.0%	Slightly Degraded	3.0%	Not Degraded
7	605	SB	LA	20.7	LA	R16.560	4.140	7.8%	Not Degraded	0.0%	Not Degraded
7	605	SB	LA	R16.560	LA	R12.420	4.140	66.7%	Very Degraded	82.6%	Extremely Degraded
7	605	SB	LA	R12.420	LA	R8.280	4.140	95.3%	Extremely Degraded	91.7%	Extremely Degraded
7	605	SB	LA	R8.280	LA	R4.140	4.140	0.8%	Not Degraded	0.0%	Not Degraded
7	605	SB	LA	R4.140	LA	R0.000	4.140	1.6%	Not Degraded	0.0%	Not Degraded
8	10	EB	SBD	0	SBD	4.95	4.950	24.8%	Slightly Degraded	14.4%	Slightly Degraded
8	10	EB	SBD	4.95	SBD	9.9	4.950	88.4%	Extremely Degraded	89.4%	Extremely Degraded
8	10	WB	SBD	9.9	SBD	4.95	4.950	3.9%	Not Degraded	25.8%	Slightly Degraded
8	10	WB	SBD	4.95	SBD	0	4.950	9.3%	Not Degraded	3.8%	Not Degraded
8	60	EB	SBD	R0.000	SBD	R4.987	4.987	87.6%	Extremely Degraded	80.3%	Extremely Degraded
8	60	EB	SBD	R4.987	RIV	R0.017	4.988	No Data	No Data	No Data	No Data
8	60	EB	RIV	R0.017	RIV	R5.004	4.987	0.0%	Not Degraded	3.0%	Not Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A14											
7	405	SB	LA	9.861	LA	4.842	4.843	54.3%	Very Degraded	70.5%	Very Degraded
7	605	NB	LA	R0.000	LA	R4.140	4.140	1.6%	Not Degraded	6.8%	Not Degraded
7	605	NB	LA	R4.140	LA	R8.280	4.140	31.0%	Slightly Degraded	39.4%	Slightly Degraded
7	605	NB	LA	R8.280	LA	R12.420	4.140	38.0%	Slightly Degraded	64.4%	Very Degraded
7	605	NB	LA	R12.420	LA	R16.560	4.140	52.7%	Very Degraded	72.0%	Very Degraded
7	605	NB	LA	R16.560	LA	20.7	4.140	14.0%	Slightly Degraded	3.0%	Not Degraded
7	605	SB	LA	20.7	LA	R16.560	4.140	7.8%	Not Degraded	0.0%	Not Degraded
7	605	SB	LA	R16.560	LA	R12.420	4.140	66.7%	Very Degraded	82.6%	Extremely Degraded
7	605	SB	LA	R12.420	LA	R8.280	4.140	95.3%	Extremely Degraded	91.7%	Extremely Degraded
7	605	SB	LA	R8.280	LA	R4.140	4.140	0.8%	Not Degraded	0.0%	Not Degraded
7	605	SB	LA	R4.140	LA	R0.000	4.140	1.6%	Not Degraded	0.0%	Not Degraded
8	10	EB	SBD	0	SBD	4.95	4.950	24.8%	Slightly Degraded	14.4%	Slightly Degraded
8	10	EB	SBD	4.95	SBD	9.9	4.950	88.4%	Extremely Degraded	89.4%	Extremely Degraded
8	10	WB	SBD	9.9	SBD	4.95	4.950	3.9%	Not Degraded	25.8%	Slightly Degraded
8	10	WB	SBD	4.95	SBD	0	4.950	9.3%	Not Degraded	3.8%	Not Degraded
8	60	EB	SBD	R0.000	SBD	R4.987	4.987	87.6%	Extremely Degraded	80.3%	Extremely Degraded
8	60	EB	SBD	R4.987	RIV	R0.017	4.988	No Data	No Data	No Data	No Data
8	60	EB	RIV	R0.017	RIV	R5.004	4.987	0.0%	Not Degraded	3.0%	Not Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A15											
8	91	EB	RIV	13.022	RIV	17.4	4.378	97.7%	Extremely Degraded	93.2%	Extremely Degraded
8	91	WB	RIV	17.4	RIV	13.022	4.378	9.3%	Not Degraded	9.1%	Not Degraded
8	91	WB	RIV	13.022	RIV	8.644	4.378	3.1%	Not Degraded	13.6%	Slightly Degraded
8	91	WB	RIV	8.644	RIV	4.266	4.378	73.6%	Very Degraded	41.7%	Slightly Degraded
8	91	WB	RIV	4.266	RIV	R0.000	4.378	48.1%	Slightly Degraded	14.4%	Slightly Degraded
8	210	EB	SBD	0	SBD	4.933	4.933	93.0%	Extremely Degraded	89.4%	Extremely Degraded
8	210	EB	SBD	4.933	SBD	9.867	4.934	34.9%	Slightly Degraded	56.8%	Very Degraded
8	210	EB	SBD	9.867	SBD	14.8	4.933	17.8%	Slightly Degraded	9.1%	Not Degraded
8	210	WB	SBD	14.8	SBD	9.867	4.933	3.1%	Not Degraded	14.4%	Slightly Degraded
8	210	WB	SBD	9.867	SBD	4.933	4.934	18.6%	Slightly Degraded	20.5%	Slightly Degraded
8	210	WB	SBD	4.933	SBD	0	4.933	3.9%	Not Degraded	5.3%	Not Degraded
8	215	NB	RIV	R38.300	RIV	40.646	2.653	68.2%	Very Degraded	78.8%	Extremely Degraded
8	215	NB	RIV	40.646	RIV	43.300R	2.654	13.2%	Slightly Degraded	11.4%	Slightly Degraded
8	215	SB	RIV	43.300L	RIV	40.646	2.654	97.7%	Extremely Degraded	96.2%	Extremely Degraded
8	215	SB	RIV	40.646	RIV	R38.300	2.653	88.4%	Extremely Degraded	78.0%	Extremely Degraded
11	5	NB	SD	R30.700R	SD	R34.600	3.900	53.5%	Very Degraded	78.0%	Extremely Degraded
11	5	NB	SD	R34.600	SD	R38.500	3.900	86.0%	Extremely Degraded	88.6%	Extremely Degraded
11	5	SB	SD	R38.500	SD	R34.616	3.884	4.7%	Not Degraded	0.8%	Not Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A16											
11	5	SB	SD	R34.616	SD	R30.700L	3.883	5.4%	Not Degraded	4.5%	Not Degraded
11	15	NB	SD	M12.000	SD	M15.900	3.900	54.3%	Very Degraded	64.4%	Very Degraded
11	15	NB	SD	M15.900	SD	M19.800	3.900	8.5%	Not Degraded	18.2%	Slightly Degraded
11	15	NB	SD	M19.800	SD	M23.700	3.900	3.1%	Not Degraded	15.2%	Slightly Degraded
11	15	NB	SD	M23.700	SD	M27.600	3.900	4.7%	Not Degraded	8.3%	Not Degraded
11	15	SB	SD	M27.600	SD	M23.700	3.900	3.1%	Not Degraded	3.8%	Not Degraded
11	15	SB	SD	M23.700	SD	M19.800	3.900	1.6%	Not Degraded	2.3%	Not Degraded
11	15	SB	SD	M19.800	SD	M15.900	3.900	48.8%	Slightly Degraded	50.0%	Very Degraded
11	15	SB	SD	M15.900	SD	M12.000	3.900	0.8%	Not Degraded	0.8%	Not Degraded
11	94	WB	SD	R11.4	SD	M10.380L	1.020	No Data	No Data	No Data	No Data
11	163	NB	SD	0.54R	SD	0.9	0.340	No Data	No Data	No Data	No Data
11	805	NB	SD	28	SD	28.5	0.500	No Data	No Data	No Data	No Data
11	905	EB	SD	R11.720	SD	R11.730	0.010	No Data	No Data	No Data	No Data
12	5	NB	ORA	6.7	ORA	11.299	4.599	0.0%	Not Degraded	0.8%	Not Degraded
12	5	NB	ORA	11.299	ORA	15.898	4.599	18.6%	Slightly Degraded	12.1%	Slightly Degraded
12	5	NB	ORA	15.898	ORA	20.497	4.599	0.8%	Not Degraded	3.0%	Not Degraded
12	5	NB	ORA	20.497	ORA	R25.097	4.600	66.7%	Very Degraded	50.8%	Very Degraded
12	5	NB	ORA	R25.097	ORA	29.703	4.599	99.2%	Extremely Degraded	93.9%	Extremely Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A17											
12	5	NB	ORA	29.703	ORA	34.302	4.599	99.2%	Extremely Degraded	97.7%	Extremely Degraded
12	5	NB	ORA	34.302	ORA	TRUE	4.599	10.9%	Slightly Degraded	25.0%	Slightly Degraded
12	5	NB	ORA	38.901	ORA	43.5	4.599	0.0%	Not Degraded	0.0%	Not Degraded
12	5	SB	ORA	43.5	ORA	38.901	4.599	3.1%	Not Degraded	7.6%	Not Degraded
12	5	SB	ORA	38.901	ORA	34.302	4.599	76.7%	Extremely Degraded	76.5%	Extremely Degraded
12	5	SB	ORA	34.302	ORA	29.703	4.599	79.8%	Extremely Degraded	55.3%	Very Degraded
12	5	SB	ORA	29.703	ORA	R25.096	4.600	40.3%	Slightly Degraded	44.7%	Slightly Degraded
12	5	SB	ORA	R25.096	ORA	20.497	4.599	0.0%	Not Degraded	3.8%	Not Degraded
12	5	SB	ORA	20.497	ORA	15.898	4.599	10.9%	Slightly Degraded	16.7%	Slightly Degraded
12	5	SB	ORA	15.898	ORA	11.299	4.599	15.5%	Slightly Degraded	15.9%	Slightly Degraded
12	5	SB	ORA	11.299	ORA	6.7	4.599	21.7%	Slightly Degraded	25.8%	Slightly Degraded
12	22	EB	ORA	R0.700	ORA	R4.368	3.668	0.0%	Not Degraded	0.8%	Not Degraded
12	22	EB	ORA	R4.368	ORA	R8.036	3.668	38.8%	Slightly Degraded	43.9%	Slightly Degraded
12	22	EB	ORA	R8.036	ORA	R11.600	3.668	17.8%	Slightly Degraded	25.0%	Slightly Degraded
12	22	WB	ORA	R11.600	ORA	R8.036	3.668	13.2%	Slightly Degraded	40.2%	Slightly Degraded
12	22	WB	ORA	R8.036	ORA	R4.368	3.668	0.0%	Not Degraded	0.0%	Not Degraded
12	22	WB	ORA	R4.368	ORA	R0.700	3.668	0.0%	Not Degraded	0.8%	Not Degraded
12	55	NB	ORA	R6.000	ORA	R9.761	3.761	58.1%	Very Degraded	95.5%	Extremely Degraded



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A18											
12	55	NB	ORA	R9.761	ORA	13.539	3.760	15.5%	Slightly Degraded	59.8%	Very Degraded
12	55	NB	ORA	13.539	ORA	17.3	3.761	50.4%	Very Degraded	53.8%	Very Degraded
12	55	SB	ORA	17.3	ORA	13.539	3.761	54.3%	Very Degraded	55.3%	Very Degraded
12	55	SB	ORA	13.539	ORA	R9.761	3.760	77.5%	Extremely Degraded	81.1%	Extremely Degraded
12	55	SB	ORA	R9.761	ORA	R6.000	3.761	0.0%	Not Degraded	14.4%	Slightly Degraded
12	57	NB	ORA	10.800R	ORA	14.7	3.900	4.7%	Not Degraded	4.5%	Not Degraded
12	57	NB	ORA	14.7	ORA	18.6	3.900	45.7%	Slightly Degraded	53.8%	Very Degraded
12	57	NB	ORA	18.6	ORA	R22.500	3.900	88.4%	Extremely Degraded	97.7%	Extremely Degraded
12	57	SB	ORA	R22.500	ORA	18.6	3.900	58.9%	Very Degraded	75.8%	Extremely Degraded
12	57	SB	ORA	18.6	ORA	14.7	3.900	51.9%	Very Degraded	74.2%	Very Degraded
12	57	SB	ORA	14.7	ORA	10.800L	3.900	74.4%	Very Degraded	73.5%	Very Degraded
12	91	EB	ORA	R0.000	ORA	0.864	4.498	No Data	No Data	No Data	No Data
12	91	EB	ORA	0.864	ORA	5.361	4.497	20.2%	Slightly Degraded	19.7%	Slightly Degraded
12	91	EB	ORA	5.361	ORA	R9.859	4.498	77.5%	Extremely Degraded	58.3%	Very Degraded
12	91	EB	ORA	R9.859	ORA	R14.356R	4.497	Monitor Only	Monitor Only	Monitor Only	Monitor Only
12	91	EB	ORA	R14.356R	ORA	R18.900	4.498	Monitor Only	Monitor Only	Monitor Only	Monitor Only
12	91	WB	ORA	R18.900	ORA	R14.385L	4.515	Monitor Only	Monitor Only	Monitor Only	Monitor Only
12	91	WB	ORA	R14.385L	ORA	R9.870	4.515	Monitor Only	Monitor Only	Monitor Only	Monitor Only



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2015 STATEWIDE HOV LANE SEGMENTS DEGRADATION ANALYSIS

District	Route	Direction	Segment Limit					Degradation Level January 1 to June 30, 2015		Degradation Level July 1 to December 31, 2015	
			Begin County	Begin Post Mile	End County	End Post Mile	Length (Mile)	Percentage of Days Degraded	Degradation Frequency	Percentage of Days Degraded	Degradation Frequency
Continue from page A19											
12	91	WB	ORA	R9.870	ORA	5.356	4.514	90.7%	Extremely Degraded	89.4%	Extremely Degraded
12	91	WB	ORA	5.356	ORA	0.841	4.515	60.5%	Very Degraded	34.1%	Slightly Degraded
12	91	WB	ORA	0.841	ORA	R0.000	4.515	85.3%	Extremely Degraded	88.6%	Extremely Degraded
12	405	NB	ORA	0.23	ORA	5.08	4.850	25.6%	Slightly Degraded	42.4%	Slightly Degraded
12	405	NB	ORA	5.08	ORA	9.929	4.849	68.2%	Very Degraded	68.2%	Very Degraded
12	405	NB	ORA	9.929	ORA	14.779	4.850	98.4%	Extremely Degraded	97.0%	Extremely Degraded
12	405	NB	ORA	14.779	ORA	19.628	4.849	69.0%	Very Degraded	86.4%	Extremely Degraded
12	405	NB	ORA	19.628	LA	0.3	4.850	17.8%	Slightly Degraded	38.6%	Slightly Degraded
12	405	SB	LA	0.3	ORA	19.628	4.850	41.9%	Slightly Degraded	55.3%	Very Degraded
12	405	SB	ORA	19.628	ORA	14.779	4.849	95.3%	Extremely Degraded	93.9%	Extremely Degraded
12	405	SB	ORA	14.779	ORA	9.929	4.850	25.6%	Slightly Degraded	46.2%	Slightly Degraded
12	405	SB	ORA	9.929	ORA	5.08	4.849	91.5%	Extremely Degraded	85.6%	Extremely Degraded
12	405	SB	ORA	5.08	ORA	0.23	4.850	15.5%	Slightly Degraded	22.7%	Slightly Degraded
12	605	NB	ORA	R0.000	ORA	R1.600	1.600	No Data	No Data	No Data	No Data
12	605	SB	ORA	R1.600	ORA	R0.000	1.600	No Data	No Data	No Data	No Data